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LAND FORCE

VOLUME 2

LAND FORCE TACTICAL DOCTRINE

(ENGLISH)

Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du Chef d'état-major de la Défense

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OPI: Director of Army Doctrine (DAD)

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FOREWORD

1. The purpose of CFP 300-2 Land Force Tactical Doctrine is to provide guidance to commanders and their staffs in the tactical employment of formations in combat.

2. The practices described in CFP 300-2 are consistent with the principles discussed in CFP 300. Canada's Army and CFP 300-1 Conduct of Land Operations. However, while these capstone publications deal with 'how to think', CFP 300-2 is intended to provide formation commanders at the tactical level with guidance for the conduct of operations. As Canadian doctrine is harmonised with NATO doctrine, CFP 300-2 should be read in conjunction with the NATO publications ATP-35(B) Land Force Tactical Doctrine and ATP 27(B) Offensive Air Support Operations.

3. The manual is set at the tactical level of conflict and is concerned with the planning and execution of current battles and engagements, and planning those in the immediate future. It looks primarily at the conduct of operations on the conventional battlefield. Command at the tactical level is discussed in CFP 300-3, Command, as are the related command processes such as the Operation Planning Process, Intelligence Preparation of the Battlefield, the Targeting Process, Terrain Control and Reconstitution.

4. Land forces will rarely operate in isolation and thus commanders will need to plan for Joint operations. The detailed planning for joint operations is normally conducted by corps and higher headquarters but both divisional and brigade headquarters should consider issues such as offensive air support and air space control during the planning process.

5. It is likely that a Canadian formation will form part of a force that is combined as well as joint. A brigade or division is unlikely to be capable of operating effectively without the resources that are usually to be found at corps level and above.

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CHAPTER 1

THE BASIS OF TACTICAL DOCTRINE

"Supreme excellence consists of breaking the enemy's resistance without fighting"

...Sun Tzu

THE SPECTRUM OF CONFLICT

INTRODUCTION

1. CFP 300 Canada's Army, established a spectrum of conflict to describe the varying states of relations between nations and groups and a continuum of operations to describe the range of military responses to peace and conflict (including war). The key elements of the nature of conflict are reviewed in CFP 300-1 Conduct of Land Operations - Operational Level Doctrine for the Canadian Army and again in this manual, to provide the basis for the study of tactical doctrine.

THE SPECTRUM

2. Relations between different peoples can exist in either a condition of peace or of conflict. Peace exists between groups of people or states when there is an absence of violence or of the threat of violence. Conflict exists when violence is either manifested or threatened. The essence of conflict is a violent clash between two hostile, independent, and irreconcilable wills, each trying to impose itself on the other. Thus the object of conflict is to impose one's will upon the enemy. The means to that end is the coordinated employment of the various instruments of national power including diplomatic, economic and political efforts as well as the application of violence or of threat of violence by military force. In conflicts which have proven resistant to both peacemaking and peace enforcement efforts, there may be no alternative left but to embark on a policy of war. Therefore it can be seen that war is essentially a sub-set of conflict and not an isolated state. As with peace and conflict, the distinction between conflict other than war and war will be blurred, as a conflict may encompass a period of war fighting and then transition to prosecution through other means.

THE CONTINUUM OF OPERATIONS

3. The army classifies its activities during peacetime and conflict other than war as operations other than war. In peace, the purpose of military forces is to take part in activities in support of the civil authorities either at home or abroad, to contribute to deterrence and to train for operations. In times of conflict other than war, the government may call upon the army to carry out operations with the purpose of supporting the overall policy to resolve or end a conflict.

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OPERATIONS IN SPECIFIC ENVIRONMENTS

COMBINED OPERATIONS

MILITARY INVOLVEMENT

4. As outlined in CFP 300-1, military forces may be employed at any scale of conflict. The type and size of forces used must be compatible with the nature and the setting of the conflict at hand and the objectives sought. A force's strategy, organization, doctrine and weapons must be sufficiently flexible to enable it to serve national policy in any contingency. Limitations on the degree of power to be applied should not diminish the vigour with which operations are prosecuted. Military forces have the potential to further national objectives by:

a. waging war;

b. deterring aggression;

c. peacekeeping;

d. conducting internal security operations; and

e. participating in nation building at home and abroad.

MILITARY READINESS

5. CFP 300-1 also states that operational readiness demands that forces achieve and maintain a high standard of training. Forces-in-being must be equipped with modern weapons and equipment. Mobilization plans must be current and capable of rapid implementation. Commanders must regularly assess the readiness of their forces and improve it as necessary.

SUMMARY

6. Understanding of the spectrum of conflict allows a distinction to be drawn between the condition and the response. There are three overlapping conditions: peace, conflict other than war and war. There are some necessary military activities in peace, primarily at a national level; the response to conflict other than war is operations other than war and they embrace the activities in support of deterrence. The response to war is war fighting.

THE PRINCIPLES OF WAR

7. Napoleon once said: "The principles of war have guided the Great Commanders whose deeds have been handed down to us by history." As such, they form the basis for the successful employment of military force in conflict. Canadian doctrine recognizes ten Principles of War.

a. **Selection and Maintenance of the Aim**. Every operation must have a single, attainable and clearly defined aim which remains the focus of the operation and towards which all efforts are directed. The linkage between the levels of war is crucial; each battle, engagement or operation must be planned and executed to accomplish the military objectives established by the commander. The aim of any force, therefore, is always determined with a view to furthering the aim of the higher commander.

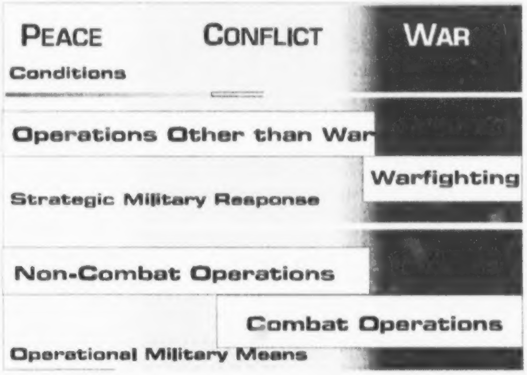
PEACE
CONFLICT
WAR
Conditions
Operations Other than War
Warfighting
Strategic Military Response
Non-Combat Operations
Combat Operations
Operational Military Means

Figure 1-1: The Continuum of Operations projected on the Spectrum of Conflict

b. **Maintenance of Morale**. After leadership, morale is the most important element on the moral plane of conflict. It is essential to ensuring cohesion and the will to win. Morale is nurtured through discipline, self-respect, confidence of the soldier in his commanders and his equipment and a sense of purpose. Field Marshal Montgomery once said: "Morale is probably the most important single factor in war, without high morale no success can be achieved - however good may be the strategic or tactical plan or anything else."

c. **Offensive Action**. Only through offensive action can we assure the defeat of the enemy. Commanders adopt the defensive only as a temporary expedient and must seek every opportunity to seize and maintain the initiative through offensive action. Initiative means setting or changing the terms of battle by action. It implies an offensive spirit in the conduct of all operations. To seize and then retain the initiative requires a constant effort to force the enemy to conform to our operational purpose and tempo while retaining our freedom of action. To achieve this, commanders must be prepared to act independently within the framework of the higher commander's intent. Seizing the initiative therefore requires audacity and, almost inevitably, the need to take risks.

d. **Surprise**. Surprise makes a major contribution to the breaking of the enemy's cohesion and hence to his defeat. Modern sensors are such that the enemy will rarely be completely surprised and its effect will be relatively short-lived. However, surprise may well serve to degrade his reaction. Surprise will be achieved by doing the unexpected and thereby creating and exploiting opportunities. Its effect can be enhanced through the use of speed, secrecy and deception though ultimately it may rest on the enemy's susceptibility, expectations and preparedness. The enemy need not be taken completely by surprise but only become aware too late to react effectively. Surprise can be gained through changes in tempo, tactics and methods of operation, force composition, direction or location of the main effort, timing and deception. Deception consists of those measures designed to mislead the enemy by manipulation, distortion or falsification of evidence to induce him to read in a manner prejudicial to his interests. It is a vital part of tactical operations serving to mask the real objectives and in particular the main effort. Consequently, it delays effective enemy reaction by misleading him about friendly intentions, capabilities, objectives, and the location of vulnerable units and installations. Tactical level deception must be coordinated with operational level deception plans so that they reinforce rather than cancel each other. A sound deception plan should be simple, believable and not so costly that it diverts resources from the main effort. Because it seeks an enemy response, it must be targeted against the enemy commander who has the freedom of action to respond appropriately. The deception plan is more likely to be successful if it encourages him to pursue his already chosen course of action.

e. **Security**. Security protects cohesion and assures freedom of action. It results from measures taken by a commander to protect his forces while taking necessary, calculated risks to defeat the enemy. In operations at the tactical level, we must not associate security with timidity. Regardless of the operations of war, commanders must ensure active security through reconnaissance, counter-reconnaissance, patrolling and movement.

f. **Concentration of Force**. In order to defeat the enemy, it is essential to concentrate overwhelming force at a decisive place and time. It does not necessarily imply a massing of forces, but rather the massing of effects of those forces. This allows a numerically inferior force to achieve decisive results.

g. **Economy of Effort**. Economy of effort implies a balanced employment of forces and a judicious expenditure of resources. Commanders must take risks in some areas in order to achieve success with the designated main effort.

h. **Flexibility**. Commanders must exercise judgement and be prepared to alter plans to take advantage of opportunities as they present themselves on the battlefield. Flexibility requires a common battlefield vision by all commanders and a clear understanding of the superior commanders' intent. Essential to flexibility are effective information gathering, rapid decision making and an agile force which can shift its main effort quickly. Forces must also be held in reserve to deal with the unexpected and to maintain the momentum of the attack by exploiting success when there is an opportunity. Reserves should be located so that they can be deployed swiftly in any direction but should also be able to avoid becoming engaged prematurely.

i. **Cooperation**. It is only through effective cooperation that the components of a force can develop the full measure of their strength. It entails a common aim, team spirit, interoperability, division of responsibility and the coordination of all the combat functions to achieve maximum synergy. Combat service support integration is a manifestation of cooperation. Tactical plans will not succeed without fully integrated Combat service support. The commander must ensure that his operation can be sustained at every stage of execution. Combat service support unit commanders must plan their own activities to give the commander the greatest possible freedom of action throughout the operation.

j. **Administration**. Operational plans are unlikely to succeed unless great care is devoted to administrative arrangements. These must be flexible and designed so that a commander has maximum freedom of action. Successful administration is the ability to make the best and most timely use of resources. Administration is the indispensable servant of operations and is often the deciding factor in assessing the feasibility of an operation or the practicality of an aim. A commander requires a clear understanding of the administrative factors which may affect his activities. He must have that degree of control over the administrative plan which corresponds to his degree of operational responsibility. It is equally important that combat service support commanders and their staffs fully understand the nature of operations and hence their support implications.

8. Jomini said: "Of all the theories on the art of war, the only reasonable one is that which, based on the study of military history, lays down a certain number of regulating principles but leaves the greater part of the conduct of war to natural genius, without binding it with dogmatic rules." The Principles of War will never provide a mathematical or intellectual formula for success in battle, but they will ensure that no single factor is omitted when one principle is balanced against the others. The violation of principles involves risks, but there are situations where it can lead to success. The decision to do so is a prerogative of the commander.

MANOEUVRE WARFARE

9. **General.** The Canadian Army, after almost a decade of debate, has adopted manoeuvre warfare as doctrine. For some, this change may mean a new way to look at how the army fights. For others, this new doctrine may involve only the minor re-thinking of how they perceive warfare in its varied dimensions. Most importantly, everyone will have to appreciate that this new doctrine means change. How much change will depend upon the individual and the circumstances.

10. Historically, war fighting in the Canadian Army has tended towards attrition warfare. There were many good reasons for the domination of this style of warfare. Our history, tradition and our structures all led us in this direction. This is not to say that our doctrine was bad, only that new doctrine has improved on the past.

11. This new doctrine is described in CFP 300-1, and is defined as a war fighting philosophy that seeks to defeat the enemy by shattering his moral and physical cohesion, his ability to fight as an effective coordinated whole, rather than destroying him by incremental attrition.

12. **The Concept**. Manoeuvre warfare is a concept that concerns itself primarily with attacking the enemy's critical vulnerability. The key to understanding what this concept entails is to realize that the defeat of an enemy need not always mean physical destruction. From time to time this may, of course, be necessary, but physical destruction of the enemy should not be the primary aim of the commander. Rather, his aim should be to defeat the enemy by bringing about the systematic destruction of the enemy's ability to react to changing situations, destruction of his combat cohesion and, most important, destruction of his will to fight.

13. That is not to say that attrition will never be used. At times, attrition may not only be unavoidable, it may be desirable. It will depend upon the commander's intent for battle. Some may argue that the Canadian Army has practised manoeuvre warfare theory for years. This is not true. Traditionally, we have taught and practised: "advance-stop-defend-stop-withdraw-stop-counter-attack-stop-defend". Our tactics have been based on securing and holding ground while the enemy is worn away. This is the foundation of attrition warfare.

14. In manoeuvre warfare, far less emphasis is placed on the securing of ground, thus forcing commanders at all levels to think of how to render the enemy incapable of fighting while minimizing friendly casualties. The command philosophy required to be successful in applying manoeuvre warfare is documented in CFP 300-1 Chapter 3. It can be best summed up as "trust leadership". Commanders at all levels have to be able to issue mission orders along with their intent and then allow their subordinates to get on with their tasks. This is the most difficult aspect to achieve since it is inherent to the nature of the military to over-control its subordinates, and with modern information and communication facilities, it is becoming increasingly easy to do so.

15. The concept of manoeuvre warfare must not be confused with manoeuvre which as defined in chapter 2, is the *employment of forces through movement in combination with speed , firepower, or fire potential, to achieve a position of advantage in respect to the enemy in order to achieve the mission.* Manoeuvre remains one of the combat functions used to build combat power.

16. Manoeuvre warfare is a mind set. There are no checklists or tactical manuals that offer a prescribed formula on how to employ manoeuvre warfare. Leaders at all levels must first understand what is required to accomplish a superior's mission and then do their utmost to work within the parameters set out for that mission.

17. **The Fundamentals.** As stated their is no prescribed formula for manoeuvre warfare, however the following ten fundamentals are offered as guidance:[1]

a. **Focus.** Focus on the enemy's vulnerabilities and not on the ground. The purist application of manoeuvre warfare is to disarm or neutralize an enemy before the fight. This requires commanders to rethink their mission statements, instead of issuing orders such as: "To hold objective BRAVO". The better mission would be: "Deny enemy access to objective BRAVO". The focus is now on the enemy instead of the ground. How the commander accomplishes this mission is left up to him.

b. **Mission Type Orders.** This involves decentralising decision making and letting decisions be taken at the lowest possible level. It is essential that commanders know and fully understand their commanders' intent two levels up. Subordinates must understand what is on their commander's mind, his vision of the battlefield and what end state is desired. Mission orders allow commanders, at all levels, to react to situations and to capitalize as they arise. The commander directs and controls his operation through clear intent and tasks rather than detailed supervision and control measures or restriction.

c. **Agility-acting quicker than the enemy can react.** Agility enables us to seize the initiative and dictate the course of operations. Eventually, the enemy is overcome by events and his cohesion and ability to influence the situation are destroyed. Agility is the liability of the commander to change the mission or the positioning if his forces between engagements faster than the enemy can anticipate. Quickness is the key to agility. Commanders are quick to make decisions and to take advantage of the new situations. Units must be able to respond with sufficient quickness to exploit the change of direction. Getting inside the enemy's decision cycle is the essence of tempo. Well rehearsed battle drills, standard operating procedure enhance the agility of a formation.

d. **Avoid Enemy Strength, Attack Weakness.** Simply put: do not attack where an enemy is strong. Look for weaknesses and attack them, whether they are physical or moral.

e. **Support Manoeuvre With Fire**. Fire support complements the tactics of manoeuvre warfare; it does not supplant them. A few rounds that are immediately available may be worth more than a heavy weight of fire hours later. The selective concentration of fire support in a focused, violent attack adds to shock and dislocation.

f. **Focus of Main Effort**. Main Effort focuses combat power and resources on the vital element of the plan and allows subordinates to make decisions which will support the commander's intent without constantly seeking advice. This way, the commander is successful in achieving his goal and each subordinate ensures his actions support the main effort. It is the focus of all, generally expressed in terms of a particular friendly unit. While each unit is granted the freedom to operate independently, everyone serves the ultimate goal, which unifies their efforts.

g. **Exploit Tactical Opportunities.** Commanders continually assess the situation (mission analysis) and then have the necessary freedom of action to be able to react to changes more quickly than the enemy. Rigid control measures that are interchangeable and unlikely to survive first contact are avoided. Reserves are created, correctly positioned and grouped to exploit situations which have been created by shaping the battle to conform to friendly concepts of operations. Reserves must not be created to plug gaps or bolster failure; this hands the initiative to the enemy.

h. **Act Boldly and Decisively**. Commanders at all levels are able to deal with uncertainty and act with audacity, initiative and inventiveness in order to seize fleeting opportunities within their higher commanders' intent. They not only accept confusion and disorder, they generate it. Failure to make a decision surrenders the initiative to the enemy. Risk is calculated, understood and accepted.

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[1] The ten fundamentals were developed from: William S. Lind, *Maneuver Warfare Handbook*, Boulder CO: Westview Press, 1985; CLFCSC SC 2900-1, 17 Dec 1992, *Whither Canadian Military Doctrine: Manoeuvre Warfare*; and Monograph by CGS of New Zealand Army, 1994, *NZ P12 Doctrine*.

i. **Avoid Set Rules and Patterns**. Each situation requires a unique solution. Commanders are imaginative and do not allow the enemy to predict his tactics.

j. **Command From the Front**. Commanders place themselves where they can influence the main effort.

18. **Summary**. The adaptation of manoeuvre warfare requires commanders at all levels to be comfortable with mission analysis, commanders's intent, mission orders and the understanding that defeating the enemy does not necessarily mean the destruction of all his troops. Manoeuvre warfare does not replace attrition warfare. However the emphasis in all future conflict must not be on attrition. Most important, manoeuvre warfare is an attitude of mind; commanders think and react faster than their foes in order to mass friendly strengths against enemy weaknesses to attack his vulnerabilities be they moral or physical.

COMBAT POWER

19. The Principles of War guide the application of combat power to achieve tactical success. Combat power is generated by the integration of a number of elements referred to as combat functions. The army defines six combat functions. These are: command, information operations, manoeuvre, firepower, protection and sustainment. Commanders seek to integrate these functions and apply them as overwhelming combat power when and where required. The aim is to convert the potential of forces, resources and opportunities into actual capability which is greater than the sum of the parts. Integration and coordination are used to produce violent, synchronized action at the decisive time and place to fix or strike the enemy. The practical expression of the combat functions is **combat power** - the total means of destructive and/or disruptive force which a military unit or formation can apply against an opponent at a given time and place. Combat power is generated through the integration of the combat functions by the application of tempo, designation of a main effort and synchronization. Combat power is discussed in greater detail in chapter 2.

BATTLEFIELD FRAMEWORK

20. The battlefield framework is used to coordinate operations thereby promoting cohesion and allowing command to be exercised effectively. This is achieved through geographic measures which serve to distinguish between those things which a commander can control in space and time to fulfil his mission, those things which may interest him to the extent that they may affect the successful outcome of his mission and those things which he can directly influence now. These equate respectively to Area of Operations (which will be designated for a commander), Area of Interest (which he will then decide for himself) and Area of Influence (which will be a function of his eventual plan and the allocated resources).

a. **Area of Operations**. The purpose of allocating an area of operations to a subordinate is to define the geographical limits, a volume of space, within which he may conduct operations. Within these limits, a commander has the authority to conduct operations, coordinate fire, control movement, and develop and maintain installations. Deep, close and rear operations are conducted within the area of operations specific to each level of command. For any one level of command, areas of operations will never overlap. Conversely, in dispersed operations they may not be adjacent.

b. **Area of Interest**. The purpose of defining an area of interest is to identify and monitor factors, including enemy activities, which may influence the outcome of the current and anticipated missions, beyond the area of operations. A commander will decide for himself how wide he must look, in both time and space. Areas of interest may overlap with those of adjacent forces and this will require coordination. The scope of this wider view is not limited by the reach of organic intelligence forces, but depends on the reach and mobility of the enemy. Where necessary, information must be sought from intelligence sources of adjacent and higher formations.

c. **Area of Influence**. The area of influence is the physical volume of space that expands, contracts and moves according to a formation or unit's current ability to acquire or engage the enemy. It will be determined by the reach of organic systems, or those temporarily under command. At divisional level and below, it is unlikely that the area of responsibility and the area of influence will coincide particularly as terrain has a more restricting effect on reach and mobility. The area in which a force can bring combat power to bear at any time will therefore vary. It can only be realistically judged by the commander, who needs constant awareness of his area of influence. He must also visualize how it will change as he moves against the enemy and therefore how he might task, organize and deploy his subordinates. The use of control measures can assist the commander in doing this.

TACTICAL ORGANIZATION OF THE BATTLEFIELD

21. Three closely related sets of activities characterize operations within an area of operations - deep, close and rear operations. These operations must be considered together and fought as a whole. Deep, close and rear operations also need to be integrated between levels of command because of the differences in scale and emphasis between formations of varying sizes and resources. For example a brigade may be conducting a close operation as part of a corps level deep operation.

22. This concept of deep, close and rear operations provides a means of visualising the relationship of friendly forces to one another, and to the enemy, in terms of time, space, resources and purpose. Formations and units may engage in deep, close and rear operations at different stages of the battle. It is preferable to conduct deep and close operations concurrently, not only because each will influence the other, but also because the enemy is best defeated by fighting him simultaneously throughout his depth. As such, deep, close and rear operations are concepts that facilitate the command and coordination of operations.

23. **Deep Operations.**

a. **Conduct.** Deep operations are normally those conducted against the enemy's forces or resources not currently engaged in the close fight. They prevent the enemy from using his resources where and when he wants to on the battlefield. Deep operations are not necessarily a function of depth, but rather a function of what forces are being engaged and the intent of the operations. Deep operations dominate the enemy by nullifying his firepower, disrupting his command and control, disrupting the tempo of his operations, destroying his forces, preventing reinforcing manoeuvre, destroying his installations and supplies and breaking his morale. The integrated application of firepower, manoeuvre and information warfare can be combined to execute deep operations. Airborne and air assault forces, attack aviation units, long range artillery and high-speed armoured forces provide the land component and joint force commanders the capability to thrust deep in the battlefield to seize facilities and disrupt key enemy functions. Command and control warfare uses a combination of electronic warfare, deception, psychological operations, operations security and physical destruction to disrupt, destroy and confuse the enemy's command and control efforts. Deep operations expand the battlefield in space and time to the full extend of friendly capabilities and focus on key enemy vulnerabilities. In his design of operations, the commander will normally devote information operations, firepower, and manoeuvre resources to deep operations in order to set conditions for future close operations. Deep operations have a current dimension and is setting the conditions for future operations. In this respect, although they may offer some prospect of immediate results, they are focused on providing long term benefits.

b. **Command of Deep Operations**. The commander may appoint a subordinate commander to conduct a deep operation. This subordinate commander should either be given all the resources needed to execute the operation or, at a minimum, have the facility to control the means required to prosecute deep operations. These include appropriate intelligence, surveillance, target acquisition and strike assets, i.e., reconnaissance, artillery, air, aviation and electronic warfare units.

24. **Close Operations**.

a. **Conduct.** Forces in contact with the enemy are fighting close operations. Close operations are usually the corps and division current battle and include the engagements fought by brigades and battalions. Close operations may not occur in adjacent areas and consequently gaps may result. Designated commanders must be directed to monitor these gaps and given freedom to maintain the security of their forces engaged in close operations. Close operations are primarily concerned with striking the enemy, although their purpose also includes fixing selected enemy forces in order to facilitate striking actions by other components of the force. The time dimension of close operations is immediate, although they are important in setting the conditions for future operations. The requirement to use reserves in close operations will depend to some extent on the success of deep operations in fixing the enemy. The more successful the fixing action, the more the enemy's freedom of action is curtailed. Consequently, there is less of a need for a large reserve to be held out of action to cater for the unexpected. Forces may, however, be held in echelon for sequential commitment, though it is desirable in close operations to achieve concentration of force on an enemy force from a variety of directions.

b. **Command of Close Operations.** Command of close operations is normally best conducted by subordinate commanders who are normally best positioned to formulate, and subsequently adjust, the detailed execution of plans to meet rapidly changing battle situations. When possible, the superior commander will sequence major battlefield actions to ensure that his command organization, and those of his subordinate commanders, are not over tasked. However, coordination, especially of deep and close operations, can often produce synergistic and decisive effects. Thus the organization of command must be sufficiently robust and flexible to maintain effective command over a number of concurrent operations throughout the depth of the battlefield.

25. **Rear Operations.**

a. **Conduct.** Rear operations assist in providing freedom of action and continuity of operations, logistics, and command. Their primary purpose is to sustain the current close and deep operations and to posture the force for future operations. The division of responsibility for the overall protection of the force will be determined by the force commander. To preclude diverting assets needed for close or deep operations, units involved in rear operations must protect themselves against all threats. Some combat forces may have to be assigned for rear operations.

b. **Command of Rear Operations**. Rear operations must be focused clearly to support the commander's intent. Unity of command is essential in order to coordinate the many support functions and diversity of units involved, potentially spread over a wide area. The responsibility for decisions affecting rear operations must remain with the formation commander, particularly given the potentially critical effect that the outcome of rear operations may have on close and deep operations. Forces within the rear area of operations may need to conduct battles and engagements to eliminate an enemy threat. In addition to its primary role to sustain the force, the command organization of rear operations must therefore include the capability to gather intelligence and to plan and mount operations.

OPERATIONS OF WAR

26. **General.** In order to maintain the flexibility and fluidity of land operations and to allow tempo to be varied, three operations of war are recognised: offence, defence and delay. All three operations are conducted in contact with the enemy and can be carried out simultaneously by elements within a force, or sequentially by the force as a whole. In order to move from one operation to another and to ensure the continuity, operations are linked by transitional phases in which the force is disengaging or seeking to re-establish contact.

27. **Offensive Operations**.

a. **Purpose**. Offence is the decisive operation of war. The purpose of offensive operations is to defeat the enemy by imposing our will on him through the application of focused violence throughout his depth. Manoeuvre in depth poses an enduring and substantial threat to which the enemy must respond. He is thus forced to react rather than being able to take the initiative.

b. Physical damage of the enemy is, however, merely a means to success and not an end in itself. The requirement is to create paralysis and confusion thereby destroying the coherence of the defence and fragmenting and isolating the enemy's combat power. This can be accomplished by the use of surprise and concentration of force to achieve momentum which must then be maintained in order to retain the initiative. By so doing, the enemy's capability to resist is destroyed.

c. **Conduct of Offensive Operations**. Offensive operations are discussed in more detail in chapter 3.

28. **Defensive Operations.**

a. **Purpose.**

(1) The usual purpose of a defensive operation is to defeat or deter a threat in order to provide the right circumstances for offensive action. Offensive action is fundamental to the defence to ensure success.

(2) There are occasions where defensive operations will be necessary and even desirable. The object will be to force the enemy to take action that narrows his options, reduces his combat power and exposes him to a decisive counter-offensive.

(3) There are two recognized forms of defence:

(a) **Mobile Defence**. In mobile defence, the defender does not have a terrain advantage and emphasizes defeating the enemy rather than retaining or seizing ground.

(b) **Area Defence**. Area defence exploits a terrain advantage and emphasizes the retention of terrain .

b. Conduct of Defensive Operations. Defensive operations are discussed in more detail in chapter 4.

29. **Delaying Operations.**

a. **Purpose**. Delaying operations provide the basis for other operations by yielding ground, that is trading space for time, slowing the enemy's momentum and inflicting maximum damage in such a way that the force conducting the operation does not become decisively engaged. They can be a precursor to either further defensive or offensive actions.

b. **Conduct of Delaying Operations**. Delaying operations are discussed in more detail in chapter 5.

30. **Transitional Phases.** Transitional phases link the three operations of war. They can never be decisive and only contribute to the success. They are:

a. **Advance**. In the advance, the commander seeks to gain or re-establish contact with the enemy under the most favourable conditions. By seeking contact in this deliberate manner, the advance to contact differs from the meeting engagement where contact is made unexpectedly.

b. **Meeting Engagement**. The meeting engagement is a combat action that occurs between two moving forces. These forces may be pursuing quite separate missions that conflict with the meeting engagement. A meeting engagement will often occur during an advance and can easily lead to a hasty attack. In offensive and defensive operations, it will often mark a moment of transition in that the outcome may well decide the nature of subsequent operations.

c. **Link-Up**. A link-up is conducted where friendly forces are to join up, normally in enemy controlled territory. Its aim will be to establish contact between two or more friendly units or formations.

d. **Withdrawal.** A withdrawal occurs when a force disengages from an enemy force. Although disengagement of main forces is invariably intended, contact may be maintained by screen or reconnaissance forces.

e. **Relief of Troops in Combat.** Relief of troops occurs when combat activities are taken over by one force from another. There are four types of relief:

(1) Relief in Place,

(2) Forward Passage of Lines,

(3) Rearward Passage of Lines, and

(4) Retirement.

f. The transitional phases are covered in more detail in chapter 7 .

JOINT OPERATIONS

31. **General**. Land forces will rarely operate in isolation and commanders will need to achieve land and air integration. Since air power is fundamental to the success of land operations, formation commanders and their staffs incorporate it into their plans and coordinate it with land systems. The land plan must conform to the reality of the air situation.

32. **The Air Situation**. The air situation is the principal consideration is gaining and maintaining freedom of action. The air commander usually gains this freedom by taking the necessary steps to control the aerospace. The campaign for control of the aerospace spans both the strategic and tactical actions and is the first priority of air forces. This control is essential in executing successful attacks against an enemy and in avoiding unacceptable losses which could disintegrate the sustained combat effectiveness of a force. The air situation is described as:

a. **Air Supremacy**. The enemy is incapable of effective interference in our operations.

b. **Air Superiority**. Operations at a given time and place can be conducted without significant interference from enemy air forces. Air superiority connotes full freedom of action but is limited by time and space.

c. **Favourable Air Situation**. A favourable air situation exists when air forces have little difficulty achieving air superiority when and where required. Implicitly this means that air forces enjoying a favourable air situation hold the advantage in the balance of air power.

33. **Air Operations**. Air operations are categorized as strategic offensive, strategic defensive, joint, surveillance and reconnaissance, air transport and supporting air operations. Joint operations are of direct concern to land forces. Aircraft characteristics usually allow them to contribute to more than one type of air operations. Thus, the weight of the air force effort dedicated to any one type of operation will be constantly changing. Two categories of air assets normally support joint operations: those under the operational control of a land commander, termed tactical aviation assets and normally consisting of rotorcrafts and light aircrafts, and those under the operational control of the air commander, termed tactical air assets and consisting of high performance fighters and light or medium transport aircrafts.

34. **Tactical Air Operations**. Tactical Air Operations are further subdivided as:

a. Counter-air operations,

b. Air Interdiction,

c. Offensive Air Support, and

d. Tactical Air Transport.

35. **Counter-air Operations**. Counter-air operations are directed against the enemy's air capabilities to attain and maintain a degree of air superiority. Counter-air operations are divided into two categories:

a. **Offensive Counter-air Operations**. These operations include counter-air attack, fighter sweeps and suppression of enemy air defence conducted to deny the enemy full use of its air resources. Targets for these operations are the elements of the enemy's air offensive and defensive systems including airfields, aircraft, surface to air complexes, command and control facilities, and fuel storage areas.

b. **Defensive Counter-air Operations**. These operations include all measures designed to nullify or reduce the effectiveness of enemy air action:

(1) active defence counter-air operations are conducted to detect, identify, intercept and destroy hostile aircraft which threaten friendly forces and installations; and

(2) passive defence counter-air operations consists of measures which enhance survivability of friendly forces and installations from hostile attacks.

36. **Air Interdiction Operations**. These operations destroy, neutralize or delay the enemy's military potential. Air interdiction is conducted at such a distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. Aircrafts normally assume the major role in an interdiction campaign; however, surface to surface weapons may also be used. Decisions on selection of targets and allocation of resources must be determined jointly.

37. **Offensive Air Support**. Offensive air support is conducted in direct support of land operations and consists of:

a. **Tactical Air Reconnaissance**. Tactical air reconnaissance is the collection of information of interest either by visual observation from the air or through the use of airborne sensors.

b. **Battlefield Air Interdiction**. Battlefield air interdiction attacks enemy surface targets in the vicinity of the battle area. Because the proximity of the targets engaged by means of Battlefield Air Interdiction to the joint battle, coordination and joint planning are required. However, continuous coordination may not be required during the execution phase.

c. **Close Air Support**. Close air support is action against enemy which are in close proximity to friendly forces and which requires the detailed integration of each mission with their fire and movement.

38. **Tactical Air Transport**. Tactical air transport is defined as the movement of passengers and cargo within a theatre, and is categorized as follows:

a. Airborne operations,

b. Air logistic support,

c. Special missions, and
d. Aeromedical evacuation missions.

UNIQUE OPERATIONS - AIRMOBILE OPERATIONS

39. An airmobile operation is an operation "... in which combat forces and their equipment manoeuvre about the battlefield by aircraft, to engage in ground combat" (AAP-6). The aircrafts are normally under the command of the ground force commander. Air mobility provides an additional dimension to ground forces.

40. Airmobile operations are an integral part of the land battle and are particularly dependent on accurate and up to date intelligence. Airmobile forces may operate in conjunction with other ground forces, or independently, and will usually conduct their operations in undefended or lightly defended areas. In certain circumstances however, they may operate in areas occupied by well organized enemy combat forces, provided that adequate resources are available for suppression. The threat of such airmobile forces may be sufficient to cause the enemy to dissipate his strength by protecting vital installations and key terrain in his rear areas which would otherwise be inaccessible to the attack of friendly ground forces.

41. The key characteristics of airmobile forces, i.e., speed, reach and flexibility, enable commanders to react quickly over the entire width and depth of their area of operations, assisting them to wrest the initiative from the enemy and gain freedom of action. Airmobile forces are thus suited for operations in depth with the intent of fixing the enemy prior to the main force striking him. They are also suitable for the role of a mobile reserve. Airmobile forces are, however, lightly equipped, and once in place, have limited ground mobility. If operating independently they are likely to require the provision of combat support and combat service support from external sources.

42. Airmobile operations are covered in more detail in chapter 7.

UNIQUE OPERATIONS - AIRBORNE OPERATIONS

43. An airborne operation is: "An operation involving the movement of combat forces and their logistic support into an objective area by air" (AAP-6). During the assault stage of the operation, airborne forces may be inserted by parachute, by air operation or by a combination of both, either directly onto the objective or onto adjacent drop zones, landing zones or airfields. The combat forces may be self-supporting for short-term operations, or the operations may call for additional combat support and combat service support.

44. The success of airborne operations depends on joint planning and strict security to achieve surprise. They may be initiated independently or in conjunction with the forces operating on the ground in order to prepare, expedite, supplement or extend their action. They are normally only feasible under conditions of air superiority.

45. Airborne forces give a commander flexibility by virtue of their reach and responsiveness. The very threat of their use may cause the enemy to earmark forces to counter the threat. They are uniquely organized and specially trained for their roles, but are lightly equipped with limited means of fire support and ground mobility. Their capability to sustain operations after the initial assault is governed by the rate of aerial resupply, or the ability to seize a port or airhead or to link up with ground forces.

46. Airborne operations are covered in more detail in chapter 7.

UNIQUE OPERATIONS - AMPHIBIOUS OPERATIONS

47. An amphibious operation is: "An operation launched from the sea by naval and landing forces against a hostile or potentially hostile shore" (AAP-6). An amphibious force is: "A naval force and a landing force, together with supporting forces that are trained, organized and equipped for amphibious operations" (AAP-6).

48. The enemy is likely to have to commit a significant number of forces to secure offensive air transit lines and all other possible points of entry against an amphibious force. Once committed, the potential of the amphibious force is much reduced until it has re-embarked, on completion of the amphibious operation. Once ashore, command of the force may pass to a land commander.

49. Mobility, flexibility and current intelligence are requirements of amphibious operations. These operations exploit the element of surprise and capitalize upon enemy weaknesses. This is achieved through application of the required type and degree of force at the most advantageous locations at the most opportune times. The mere threat posed by the existence of powerful amphibious forces may induce the enemy to disperse his forces; this in turn may cause him to make expensive and wasteful efforts to defend the air transit route.

50. Amphibious operations are covered in more detail in chapter 7.

UNIQUE OPERATIONS - OPERATIONS BY ENCIRCLED FORCES

51. There may be times when a commander will have to accept encirclement of elements of his force. This will restrict the freedom of action, not only of the force concerned, but also of higher headquarters, and may indeed jeopardize the continuity of the operation. Cut-off and supported by a severely restricted supply system, the encircled troops will have to fight on their own. Their combat effectiveness may deteriorate rapidly and their morale may suffer. This type of combat places particularly heavy demands on both commanders and troops and calls for a high standard of leadership.

52. Once a force becomes encircled, the immediate responsibility of the overall commander is to consider whether the mission of the encircled force should be adjusted. The major factor will be his estimate of how long the encircled force will be able to fight on its own. Depending upon the importance of its mission, he must decide whether an outside force should launch a link-up operation, or whether the encircled force should break out, in which case support from the main force or from the air may be required.

53. Operations by encircled forces are covered in more detail in chapter 7.

OPERATIONS IN SPECIFIC ENVIRONMENTS

54. Each specific environment has characteristics of weather, terrain, infrastructure, population, time and space which must be considered during the planning process and will bear significantly on the ability of a force to perform its mission. The specific environments considered in this manual are:

a. Operations in built-up areas,

b. Operations in mountains,

c. Operations in forests,

d. Operations in Arctic and cold weather conditions, and

e. Operations in desert and extremely hot conditions.

55. Operations in specific environments are discussed in more detail in chapter 8.

COMBINED OPERATIONS

56. **General**. Outside Canada, the Canadian Forces will invariably be deployed as part of a combined operation. Such forces must be capable of operating with their alliance or coalition partners and be prepared for expansion in both the scope and complexity of potential operations. In particular there will be a requirement for enhanced command, control and liaison and for clear operating procedures.

57. **Command and Control**. When forces are involved in multinational operations both the combined force headquarters and the assigned formation must be clear on the command relationship which exists between them as well as their place in their own national command structure. The combined force commander will usually discuss specific issues with national commanders on

a bilateral basis as part of the planning process in order to produce unity of effort. Ideally, as is the case within NATO, a common doctrine will be adhered to. Where a common doctrine does not exist, there is a requirement to understand each other's procedures.

58. **Liaison.** Liaison is a key factor in ensuring the success of combined operations. It serves in fostering a clear understanding of missions, concepts, doctrine and procedures and provides for the accurate and timely transfer of vital information as well as enhancing mutual trust, respect and confidence. Consequently, liaison officers are key appointments and those selected for the role should have a thorough understanding of their forces procedures and capabilities, as well as being able to represent their commander's intentions and report objectively to him.

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CHAPTER 2

COMBAT POWER

FORMATIONS AND THEIR CAPABILITIES

1. **General**. Land forces assigned to an area of operations include the command and control headquarters and the required combat arms, combat support arms and the combat service support. These forces are organized in accordance with the requirements of their mission and the nature of the campaign. In most situations where the commitment is relatively small, the senior formation commander may be vested with national command.

2. **Organization**. The organization of land forces must provide the capability to conduct successful operations throughout the spectrum of conflict and in a wide range of environments without major changes in organizations or equipment. A special grouping of forces and the provision of special equipment may be required under certain functional or environmental conditions.

3. **Higher Formation Commands (Army Group to Corps)**

   a. **General.** The army group, the army and the corps are land force operational formations. None has a fixed composition. Each is organized to accomplish specific missions and each can serve as the land force component of a joint or combined force.

   b. **Army Group**. An army group is normally organized as a combined command to direct the operations of two or more corps. Its responsibilities are primarily operational and include the planning and allocation of resources. In combined operations, administration remains a national responsibility. When armies are established, the army group directs the operations of two or more armies.

   c. **Army.** An army may be organized to direct the operations of two or more corps. If established, the army directs operations of and provides for the administrations of its formations. In a Canadian context, an army is more likely to be established to serve as a national command when one or more corps are fielded. In this instance, its responsibilities are primarily administrative.

   d. **Corps**. The corps is the principal combat formation. Its organization varies depending upon its mission. The corps consists of a variable number of divisions and other combat, combat support and combat service support formations or units.

4. **Lower Formation Command (Division to Brigade)**

   a. **Division**. Unlike higher formations, they normally have fixed all-arms organization based on their mission, although they may have additional resources grouped with them. Operations involving divisions are usually conducted by a corps. Exceptionally, divisions may form the land force component of a joint and/or combined force. The Canadian Army may field the following types of divisions:

      (1) independent division,

      (2) mechanized division, and

      (3) armoured division.

   b. **Independent Division.** It is formed from corps resources and is essentially a mechanized division suitably reinforced to handle its independent mission. A typical independent division is augmented with combat support and combat service support elements normally provided by corps.

   c. **Mechanized Division.** The mechanized division may consist of three mechanized brigades or two mechanized brigades and an armoured brigade, with divisional troops. It is capable of covering extended frontages and

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FORMATIONS AND THEIR CAPABILITIES

COMBAT POWER

relatively deep areas of responsibility, and of operating widely dispersed. The vehicles of the formation provide a high degree of tactical mobility while offering reasonable armoured protection. With its shock effect and firepower, a division can operate effectively with armoured divisions. The bulk and weight of its vehicles make it difficult to move to or between areas of operations.

d. **Armoured Division**. The armoured division consists of two armoured brigades, one mechanized brigade and divisional troops. The inherent mobility, firepower and armoured protection of the formation enable it to dominate a large part of the battle area. The division is ideally structured to conduct aggressive action in all types of operations, particularly in conjunction with mechanized divisions. The armoured division, because of its mass and firepower, produces considerable shock action and this makes it a powerful offensive force. It, also, is difficult to move to or between areas of operations.

e. **Brigades and Brigade Groups.** Brigades and brigade groups are the basic land force formations. They normally have fixed organizations based on their role or mission. Brigades are a grouping of combat arms with little if any integral combat support arms or combat service support elements. Brigade groups contain a mixture of combat arms, combat support arms and combat service support. The Canadian Army may field the following types of brigade groups or brigades:

(1) mechanized brigade group,

(2) mechanized brigade, and

(3) armoured brigade.

f. **Mechanized Brigade Group**. This formation is a corps resource. It contains a mixture of manoeuvre units with a predominance of mechanized infantry with integral combat support and combat service support elements. It is capable of performing a variety of tasks including blocking, counter-attack and rear area security.

g. **Mechanized Brigade**. This formation contains a mixture of manoeuvre units with a predominance of mechanized infantry. Combat support and combat service support elements are provided by division.

h. **Armoured Brigade.** This formation contains a mixture of manoeuvre units with a predominance of armour. Combat support and combat service support are provided by division.

i. Although Canada may not field other types of brigades, other nations may provide these additional types:

(1) **Armoured Cavalry Brigade Group.** This formation is a corps resource. It contains a number of manoeuvre units with a predominance of armoured cavalry units. It also possesses integral combat support and combat service support elements. It is capable of performing a variety of tasks such as security, reserve and blocking.

(2) **Airborne Brigade Group**. This formation is specially trained and equipped to conduct airborne and airmobile operations. It contains a mixture of combat arms, combat support arms and combat service support. An airborne brigade group has a greater degree of strategic mobility than other formations. However, its tactical mobility is restricted and it requires reinforcement to provide its capabilities for sustained combat comparable to that of a mechanized brigade.

COMBAT POWER

5. **General**. Armies use combat power to fix and strike the enemy. Combat power is the total means of destructive and/or disruptive force that a military unit or formation can apply against an opponent at a given time.

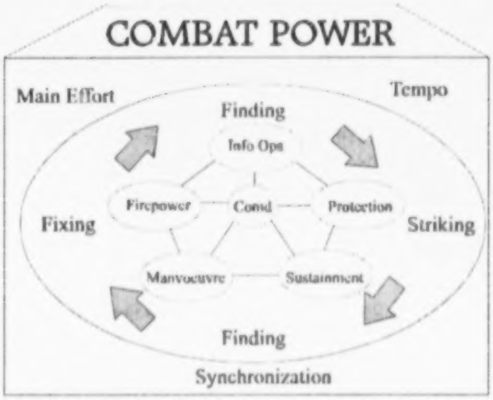

Figure 2-1 : Combat Power

6. To produce the desired effect on the enemy, combat power is applied through an inherent requirement to find the enemy in combination with the two dynamic forces of fixing and striking him. Armies pre-empt, dislocate and disrupt by fixing and striking the enemy, both on the physical and moral planes of conflict.

a. **Pre-emption**. To pre-empt the enemy is to seize an opportunity, often fleeting, before he does, in order to deny him an advantageous course of action. In doing so, it has positive value - it wrests the initiative from the enemy. Its success lies in the speed with which the situation can be subsequently exploited. Pre-emption demands a keen awareness of time and a willingness to take risks in return for tactical advantage.

b. **Dislocation**. To dislocate the enemy is to deny him the ability to bring his strength to bear. Dislocation is a deliberate act, and is critically dependent on sound intelligence rather than intuition. It seeks to obtain an advantage by avoiding the enemy's strengths or neutralizing them so that they cannot be used effectively.

c. **Disruption**. To disrupt is to rupture the integrity of the enemy's combat power and to reduce it to less than its constituent parts. Critical assets are targeted in order to confuse or paralyse the enemy at critical points in the battle, thereby decreasing the effectiveness of his force as a whole.

7. Together with the use of the two dynamic forces is the need to apply the tenets of tempo, synchronization and main effort.

a. **Tempo**. The commander controls the tempo of operations by speeding up, slowing down, or changing the type of activity. Tempo is the rhythm or rate of activity, relative to the enemy. It has three elements; speed of decision, speed of execution and the speed of transition from one activity to another. By completing his decision-action cycle consistently faster than the enemy, the commander makes the enemy's actions progressively irrelevant. The ultimate goal is panic and paralysis as the enemy loses the cohesion he requires to continue the fight. Tempo can be increased by avoiding battle unless absolutely necessary, and by relying on the ability of subordinate commanders to conduct independent action guided by the superior commander's intent.

b. **Main effort**. The commander designates a main effort to provide a focus for the actions of his subordinates. The identification of main effort encourages initiative while maintaining cohesion and unity of effort. If necessary, to ensure success, the commander must be prepared to shift the main effort and the resources required to support it.

c. **Synchronization.** The commander uses synchronization to focus his resources and activities to produce maximum combat power at the decisive time and place. The product of effective synchronization is the use of every resource when and where it will make the greatest contribution to success. Careful coordination will be required to produce synchronization and the commander must first determine what he wishes to achieve and how the activities must be sequenced to produce this. It includes, but is not limited to, the actual concentration of the manoeuvre force and firepower at the decisive point. There is also an important requirement for information to be passed quickly across the levels of command to allow information to be processed and disseminated to enhance synchronization and increase tempo.

8. **Combat Functions**. The army defines six combat functions: command, information operations, manoeuvre, firepower, protection and sustainment. Commanders seek to integrate these functions and apply overwhelming combat power against the enemy where and when it is most beneficial. This is accomplished through the application of tempo, synchronization and main effort whereby the intent is to convert the potential of forces, resources and opportunities into capability greater than the sum of the parts. This synergistic effect provides the integration and coordination necessary to produce violent, synchronized action at the decisive time and place to fix or strike the enemy. Rather than attacking enemy strength, commanders seek to attack enemy cohesion in terms of disrupting his efforts to generate combat power. This can be done by destroying or degrading individual functions, such as command or sustainment, or by attacking the links which integrate these functions, such as lines of communication. In this way the enemy command structure may be denied information, coordination of manoeuvre may be disrupted and enemy forces will be difficult to sustain. In this way, the enemies inability to integrate his functions also frustrates his attempts to apply synchronization, slows his tempo and ultimately renders his main effort irrelevant.

a. **Command**. Command is the execution of military authority by a designated commander for the planning, direction, coordination and control of military forces. Command is executed through an arrangement of personnel, equipment, facilities and procedures employed by a commander to accomplish his mission. The command function provides the means to unify and integrate the activities of the other functions. Elements of the six combat functions can be combined in an infinite number of ways. The commander coordinates and focuses forces involved in the fixing and striking operations to constantly attack enemy cohesion. This is accomplished by applying combat power in well coordinated operations to dislocate, disrupt and seize opportunities to pre-empt. The central element of the command function is a philosophy emphasizing the importance of formulating and communicating the commander's intent. A thorough understanding of the intent guides decision making at all levels, encourages both initiative and speed of action.

b. **Information Operations**. Information operations integrate all aspects of information to support and enhance the other combat functions, with the goal of dominating the enemy at the right time, the right place and with the right weapons and resources. These operations take place within three interrelated components of information operations: command and control warfare, intelligence and information, and command information systems. They also include interaction with the external information environment through public affairs and other activities.

c. The principal objective in information operations to achieve information dominance - a relative advantage between the friendly commander's decision-action cycle and that of the enemy, and to use that advantage to enhance and enable the other elements of combat power. They are also used to gain and maintain public support, the cohesion and morale of enemy forces and win the support of the indigenous population and government. The concept of information operations goes beyond the simple collection of information, and embraces information as a tool, a shield and a weapon to be used by the commander.

d. Within a formation the primary means for collecting information pertaining to the enemy and the ground is by reconnaissance. Reconnaissance by ground, air and electronic means will provide information on the enemy and the ground, and provide a degree of security to the formation by possessing stealth, surveillance and counter-reconnaissance capabilities. Stealth is seen as tactical movement and operations by surreptitious means in order to avoid detection and identification, and counter-reconnaissance is seen as the identification, targeting and neutralization of enemy reconnaissance assets in order to deny the enemy the ability to collect information on friendly forces and terrain.

e. **Manoeuvre**. Manoeuvre is the employment of forces through movement in combination with speed , firepower, or fire potential, to achieve a position of advantage in respect to the enemy in order to achieve the mission. It is the means of concentrating land, sea, and air forces at the decisive point to pre-empt, dislocate or disrupt enemy cohesion through surprise, psychological, momentum and moral dominance. While mainly physical, manoeuvre can also have moral effects such as uncertainty, confusion and paralysis. It involves trade offs: speed against security, breadth against depth, concentration against dispersion. In this regard, a degree of risk taking and audacity is implicit.

f. The freedom of manoeuvre of friendly forces encompasses mobility. Mobility tasks include overcoming natural and man-made obstacles, improving existing lines of communication and other routes or building new ones, and identifying routes around or through areas contaminated by Nuclear, Biological and Chemical agents, mines or unexploded ordinance. As the commander develops his concept of operations and considers the manoeuvre of all his forces, he is careful to retain a balance in the application of manoeuvre, firepower and protection. The nature of this balance establishes the priorities and relationships of manoeuvre to the other combat functions as the commander translates his vision of operations, the science of detailed planning and the application of combat power. While manoeuvre and firepower are complimentary, firepower can rarely substitute adequately for manoeuvre. For example, ground manoeuvre used to secure a position has an enduring effect, which compels the enemy to respond to friendly actions.

g. **Firepower.** Firepower, integrated with manoeuvre or independent of it, is used to destroy, neutralize and suppress and demoralize the enemy. Firepower should be viewed as a joint concept as it includes conventional land, air and maritime delivered munitions. It encompasses the collective and coordinated use of Target Acquisition data from all sources, direct and indirect fire weapons, armed aircraft of all types, and other lethal and nonlethal means against air, ground and sea targets. The delivery systems include artillery, mortars and other indirect fire systems, direct fire systems, naval gunfire, close air support, counter air, air interdiction and electronic attack.

h. Firepower can be used for both fixing and striking. Its utility demands coordination with other battlefield activities to achieve the greatest combined effort upon the enemy. The sudden lethal effects of firepower can cause localized disruption and dislocation, which can be exploited by manoeuvre. Firepower is also coordinated with information operation to ensure that electronic and psychological attack reinforces the physical and moral effects of firepower and manoeuvre. Using a combination of weapon systems to complicate the opponent's response is always desirable. The use of firepower, and the threat of its use, can have a tremendous effect upon enemy morale. The effects however are always temporary and should be exploited immediately.

i. **Protection**. Protection encompasses those measures a force takes to remain viable and functional by protecting itself from the effects of an enemy weapon systems and natural occurrences. Protection can be enhanced by the active measures employing firepower, manoeuvre, air defence and counter-mobility measures to fix the enemy and, if necessary, destroy him before he can attack effectively. Passive measures include hardening of facilities and fortification of battle positions, protection of civilians and civilian infrastructures, Nuclear, Biological and Chemical defensive measures, as well as camouflage, concealment and non-electronic deception. It also includes actions to reduce fratricide.

j. Protection is enhanced through efforts to limit non-combat losses, by providing basic health needs and welfare facilities, to preserve cohesion and morale as part of sustainment. The overall protection of forces is coordinated with the application of defensive command and control warfare, i.e., security, deception, electronic warfare and psychological operations, as part of information operations. Air defence is another key aspect of protecting freedom of action and it encompasses maritime, land and air capabilities. It prevents the enemy from using a primary means, air power, to break friendly cohesion. Denying mobility to enemy forces aims to disrupt, turn, block or fix enemy offensive movements, to break the physical cohesion of his forces and to enhance the combined effects of fire and manoeuvre. Counter-mobility includes obstacle creation and obscuration.

k. **Sustainment.** Sustainment is achieved through the balance of military administration and civilian support through host nation support, other governmental departments and agencies, and civilian contractors. Military administration includes, primarily, personnel administration and logistics. Sustainment provides the physical means with which forces operate but also contributes to moral cohesion through effective medical services, flexible personnel administration and morale programs.

l. Sustainment of forces is a function of all levels: strategic, operational and tactical. Within the tactical level of sustainment is the integral support, which employs the echelon system, close support and general support. It is the continuity of the sustainment effort from the strategic through to the tactical level which provides the tactical commander with the resources allowing his freedom of action.

CHAPTER 3

OFFENSIVE OPERATIONS

> *"The victor will be the one who finds within himself the resolution to attack; the side with only defence is inevitably doomed to defeat"*
>
> *M V Frunze*
> *(Soviet Military Theorist)*

PURPOSE

1. Ultimate success in battle is achieved by offensive action. Even in defence, a commander must retain the initiative and carry the battle to the enemy. Offence is the decisive operation of war. While strategic, operational or tactical considerations may require a formation to conduct a defence, the defeat of an enemy force at any level requires a shift to the offensive.

2. The principal purpose of offensive operations is to defeat the enemy, imposing our will on him by the application of focused violence, not only on the enemy's forward elements but throughout his depth.

3. Offensive operations defeat the enemy either by breaking his cohesion, or by physical destruction or both. The real damage to the enemy's will is caused by destroying the coherence of his operations and fragmenting and isolating his combat power. By so doing, the enemy's capability to resist is destroyed.

4. Other subsidiary purposes of offensive action are to:

   a. gain information;

   b. deprive the enemy of resources;
   c. deceive or divert the enemy from the main effort;

   d. fix the enemy to prevent him from regrouping or repositioning his forces;

   e. pre-empt to gain the initiative;

   f. disrupt enemy offensive action; and

   g. seize ground.

5. This chapter considers the doctrinal concepts applied to the employment of a formation in offensive operations.

PRINCIPLES OF WAR AND FUNDAMENTALS

6. **General.** In offensive operations the key to success is seizing and retaining the initiative. In doing so, a commander maintains momentum, keeps the enemy off-balance, and prevents him from blocking penetrations, mounting counter-attacks, and reforming his reserves. The initiative is seized by selecting the location, time and direction of the attack.

7. **Principles of War.** The following principles of war are important considerations during the planning and conduct of offensive operations:

   a. **Offensive Action.** Offensive action aims at defeating the enemy's will to resist. This implies manoeuvre, speed and aggressiveness. By wresting the initiative from the enemy, one acquires freedom of action and a distinct psychological advantage. Exploiting success and taking advantage of enemy weakness must be foremost in the minds of all commanders.

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b. **Concentration of Force.** A commander must strive to concentrate combat power superior to that of the enemy at a decisive time and place. Concentration not only implies massing of forces but also massing of fire power. The ability to concentrate is dependent upon movement, flexibility and communications.

c. **Surprise.** Surprise can create success out of all proportion to the size of the force used. Its elements are secrecy, concealment, deception, originality, audacity and speed. Surprise must be exploited.

d. **Security.** Security is a condition which gives a commander sufficient freedom of action to fulfil his aim. Security is manifested in the offense by having a firm base for the assembly, preparation and launching of operations. It includes securing the line of departure, the flanks of an attacking force and the lines of communication.

e. **Flexibility**. Offensive operations demand a high degree of flexibility in order to enable plans to be altered to meet changing situations and unexpected developments. This includes exploitation of opportunities as they occur. Its elements are flexibility of mind and rapidity of decision-making on the part of a commander and his subordinates, to ensure that time and opportunities are never lost. It is achieved through simplicity of plans, unity of effort and maintenance of balance.

8. **Fundamentals.** In addition to the principles of war, there are several fundamentals that must be applied in offensive operations:

a. **Information Gathering.** Knowledge of enemy dispositions, strengths and intentions is vital to success in the offence. As well, commanders at all levels need detailed information on the terrain over which their troops will fight. Information in offensive operations is gathered from three sources:

(1) troops in contact,

(2) reconnaissance, and

(3) intelligence.

b. **Simplicity.** Plans must be kept simple. Complex manoeuvres and intricate arrangements lead to confusion and misunderstanding. A clear concept of operations supported by a simple plan gives subordinate commanders an opportunity to apply their own judgement and initiative in response to changes in the local situation.

c. **Shock Action**. This is achieved by the bold handling of armour and mechanized infantry to break into the enemy defences and drive deep into his area. It may include the use of airborne or airmobile troops. Fire support is essential and is used during all stages of the operation to reinforce the shock action.

d. **Depth.** Depth is required both in the organization of offensive forces and in the selection of objectives. Organizing in depth contributes to shock action. It permits a commander to maintain constant pressure on the enemy and to exploit penetration. The securing of objectives in depth breaks the framework of the enemy defence.

e. **Balance.** A balanced force is one which is grouped in such a way that a commander can concentrate combat power to take advantage of a sudden opportunity or to react to enemy action at the decisive moment. The initial grouping must ensure that:

(1) the covering force can cover the frontage of the area of influence;

(2) leading battle groups have a suitable combination of tanks and infantry to deal with the likely opposition;

(3) forward observation officers and forward air controllers are well forward, to provide continuous fire support;

(4) requirements for engineer support are anticipated and resources are readily available, with engineer reconnaissance parties well forward; and

(5) reserves are constituted, maintained and normally deployed beyond the range of most enemy artillery, so that they can be committed rapidly to battle.

f. **Reserves.** Reserves are required to meet the unexpected. They may be committed to influence the battle, to exploit success or to respond to enemy countermoves. Reserves provide a commander with flexibility and balance. Once he has committed his reserves, the commander must reconstitute it as soon as possible.

TYPES OF OFFENSIVE ACTION

9. There are a number of offensive actions which may flow from one to another but all either lead to, or stem from, the actual attack. Some can even do both. An attack may lead to exploitation which may take the form of a continuation of the attack or become a pursuit. It is also possible for a pursuit to be followed by an attack. There are a number of different types of offensive actions with specific purposes:

a. **Hasty Attack**. "A hasty attack is an attack in which preparation time is traded for speed in order to exploit an opportunity" (AAP-6). It seeks to take advantage of the enemy's lack of preparedness, and involves boldness, surprise and speed in order to achieve success before the enemy has had time to improve his defence posture. In order to maintain momentum or retain the initiative, minimum time is devoted to preparation, and the forces used for the attack are those which are readily available. There will be little time for reconnaissance and none for rehearsal. The element of surprise created by a speedy action will act as a force multiplier. Such attacks must, wherever possible, be mounted from an unexpected direction and supported by the concentrated fire of every available weapon. Commanders should issue brief orders and then position themselves well forward to react rapidly to the development of the attack. If momentum is lost a deliberate attack may be necessary. A properly performed Intelligence preparation of the battlefield may identify areas for a hasty attack from the advance, thereby allowing some more detailed planning before the advance.

b. **Deliberate Attack**. "A deliberate attack is a type of offensive action characterized by planned and coordinated employment of firepower and manoeuvre to close with and destroy or capture the enemy" (AAP-6). When a well-prepared enemy defence must be defeated, a deliberate attack may be required. The emphasis is on preparation at the expense of speed and time, therefore methods other than speed will be required in order to achieve surprise.

c. **Counter-attack and Spoiling Attack.**

(1) The purpose of a **counter-attack** is to defeat an enemy who becomes vulnerable by his own offensive action, by revealing his main effort or creating an assailable flank. It is likely to be conducted as part of a defensive operation by a reserve or lightly committed forward elements and it affords the defender the opportunity to create favourable conditions for the commitment of combat power and a switch to offensive action.

(2) The **spoiling attack** is similarly directed at enemy offensive operations but with the limited aim of disruption. It attempts to strike the enemy while he is most vulnerable or while he is on the move prior to crossing his line of departure. A spoiling attack is pre-emptive in nature, as it attacks the enemy's plans, and hence, his cohesion. When the situation permits however, commanders can exploit a spoiling attack like any other attack.

d. An attack is often preceded by an advance to contact and seeks to seize and maintain the initiative. Additionally, a hasty attack may occur as a result of a meeting engagement. Counter-attacks are also employed by a defending force to exploit opportunities to strike the enemy at a decisive time and place in order to defeat him. Assuming that the attack has been successful, the force will consolidate and, if possible, exploit success through continued offensive action.

e. **Reconnaissance in Force**.

(1) The purpose of a reconnaissance in force is to compel the enemy to disclose the location, size, strength, disposition or intention of his force by making him respond to offensive action. The enemy's reaction may reveal weaknesses in his defensive system which can be attacked or strengths that should be avoided. Commanders may conduct reconnaissance in force as a means of keeping pressure on the defender by seizing key terrain and uncovering enemy weaknesses. They must also be prepared to seize any opportunity to exploit tactical success.

(2) A formation may conduct its own reconnaissance in force or do so at the direction of a higher headquarters. It must be conducted in enough strength to force the enemy to react, though it may be necessary to place restrictions on commanders to avoid actions that might precipitate a decisive engagement. If the force is still engaged once the actual reconnaissance is completed, it may be tasked to fix the enemy, attack or withdraw, as directed.

f. **Raid.** The wider purpose of a raid is to disrupt the enemy. More specifically, a raid is carried out to destroy or capture a vital enemy asset. It is based on detailed intelligence, generally involves swift movement into hostile territory and ends with a planned withdrawal. Because raids will often be carried out over a short distance and time period, only a limited amount of supplies need be carried and maintenance will be confined to minor crew repairs. Fire support systems are required to support the raiding force so as to reduce the enemy's ability to react. Armoured reconnaissance, airmobile, airborne and amphibious forces, particularly if supported by attack helicopters, are well suited to this type of attack.

g. **Feint And Demonstration.**

(1) The purpose of a **feint** is to deceive. It aims to fix the enemy by distracting him and, if necessary, engaging in combat in order to support the development of the main effort elsewhere on the battlefield. Feints must be of sufficient strength and composition to cause the desired enemy reaction. It is most effective when it supports the enemy's expectations, when it appears as a definite threat to the enemy, or when there are several feasible courses of action open to the attacker.

(2) The purpose of a **demonstration**, in contrast to that of a feint, is to distract the enemy's attention without seeking combat. Demonstration forces use firepower, manoeuvre and command and control warfare to support a deception plan. It should also be aimed at a vital sector of the enemy's defences if he is to be successfully misled.

THE ATTACK

10. **General.** The primary purpose of an attack is to destroy the enemy's capability to resist. An attack may be a separate operation or may be carried out in conjunction with other types of operations. A commander undertaking an attack possesses the initiative, in that he decides the location, time, direction and weight of combat power to be concentrated. Once the attack is launched, flexibility and speed in the employment of combat power are paramount. The attack must be executed vigorously, exploiting any favourable developments and reallocating resources to areas where there appears to be an opportunity for success. Momentum must be maintained in order to keep the enemy off balance and the attack must not be delayed in order to align units or adhere rigidly to a plan. Indeed, few attacks will develop as planned and commanders must be alert to turn unexpected successes to their advantage and to cope instantly with reverses. To be able to do this they must be well informed. The requirement for flexibility demands simple plans, adjustable fire support/ engineers well positioned and reserves uncommitted and close at hand and a sustainment options flexible enough to be adjusted to support the offensive operation. Each discrete attack should not be viewed as its own entity but as part of the continuous process to break the enemy's cohesion. Commanders should be considering exploiting success well before they have achieved it.

11. **Forms of Manoeuvre**. Offensive operations may be directed against the front, flank or rear of the enemy and may be conducted from the land, air or sea. Any combination of these is possible. Normally the point of main effort is placed where the enemy is weakest or where the terrain offers possibilities of braking deep into his defensive area. If nuclear weapons have been released, they are usually employed where the enemy is strongest and subsequent manoeuvre is used to exploit the effect of these weapons.

a. **Level of Use.** The forms of manoeuvre are frontal, penetration, envelopment (which includes flank attacks and attacks against the enemy's rear) and turning movement. Up to brigade level the most common forms of manoeuvre are the frontal attack and the flank attack. All forms will be used at divisional level and higher.

b. **Frontal.** In this form of manoeuvre, the main effort is directed against the front of an enemy position. It can be effective against a weak, disorganized enemy; it may be used to overrun and destroy him or to fix him. A frontal form of manoeuvre is often required to support a penetration or envelopment. Unless supported by a heavy weight of fire, it may not be successful, and even if successful, it may result in an unnecessarily high number of casualties. A commander therefore must consider these factors carefully before executing a frontal attack.

c. **Penetration**. A penetration seeks to break through the enemy's main defensive area and seize objectives in depth, thus destroying the continuity of his defence. The main effort is made on a relatively narrow front. Successful penetration requires the concentration of superior combat power at the point selected for breaking into the enemy's defences. Such points include gaps in his defences and boundary locations. The concentration must be such that the force can break through quickly, widen and secure the breach, and maintain momentum while seizing the deep objectives. It is a suitable manoeuvre when strong combat forces are available and the enemy is over-extended or if his flanks are firmly secured.

d. **Envelopment**. The main effort in an envelopment is made against the enemy's rear or flank. Its aim is to seize objectives in the enemy's rear, making his main defensive position untenable. The main attack is conducted by avoiding the enemy's strength en route to the objective and striking him from an unexpected direction. The forces conducting an envelopment must have good mobility, be deployed in depth and have secure flanks.

Rear Attack. When the main effort is directed at the enemy's rear, forces are passed around one side, both sides (double envelopment) or over (vertical envelopment) his main defensive position with the aim of securing key terrain within direct fire range of his rear. This action leads to his destruction or makes his position untenable.

(1) **Flank Attack.** When the main effort is directed at the enemy's flank, the attack seeks to strike at a more vulnerable point of the enemy's position where his concentrated firepower can be avoided. Flanking attacks aim at surprising the enemy and should be the preferred attack at brigade level and below.

e. **Turning Movement.** In this form of manoeuvre, a force passes around or over the enemy's main defensive positions to secure objectives deep in his rear beyond the range of his direct fire weapons. The aim of this manoeuvre is to compel him to abandon his position or divert major forces to meet the threat. The force attempts to avoid contact with the enemy en route to its objective.

12. **Stages**. An attack can be divided into a number of distinct, but closely related stages, which will tend to merge into each other. Indeed, to the participants, the stages are unlikely to be clear cut, especially if they are involved in other actions in support of the offence. These stages are:

a. **Mounting**. During the mounting stage, which occurs prior to H-hour, preparations are completed. Activities may include intelligence gathering, rehearsing, ammunition dumping, route improving, preparing for the crossing and breaching of obstacles, moving to assembly areas, grouping, replenishing, firing preparatory fire, deploying and, possibly, conducting a forward passage of lines. Concurrently, commanders complete their battle procedure. The force may also carry out infiltration.

b. **Assault**. In this stage the assaulting element crosses the line of departure, breaks into the enemy defensive position, and fights through the objective to destroy the enemy or cause his surrender.

c. **Consolidation**. Following an assault, a force must consolidate quickly, so that it is prepared to meet enemy counter-attacks or undertake a new task. Consolidation is normally done forward or to the flanks of the former enemy position.

MOUNTING

13. **General.** Attack forces should be held well back, as long as possible, to complete the battle procedure and to assist in maintaining security. Some preliminary grouping may take place.

14. **Information Collection**. Information is collected in accordance with the intelligence collection plan. This activity is initiated early and continues throughout the operation, primarily by reconnaissance forces. Active counter-reconnaissance will also take place in order to secure friendly movement, preparations and activities, and to achieve surprise.

15. **Route Maintenance**. There may be a requirement for route maintenance for the move to assembly areas and for deployment. Security may preclude work forward of the assembly areas early in the mounting stage, however work may be possible in the rear area. If so, engineers must be among the first troops to move forward.

16. **Selection of Assembly Areas**. Assembly areas are selected with regard for concealment, grouping and tasks, and the location of the line of departure. Assembly areas, attack positions and lines of departure should be secured by protective elements prior to their occupation by assault forces.

17. **Move to Assembly Areas**. The move to assembly areas is planned as a tactical road move. Preferably, it should be conducted under radio silence during periods of reduced visibility. This move should be planned to take place as late as possible in the mounting stage to assist in maintaining security.

18. **Obstacle Crossing and Breaching.** Preparations for crossing or breaching are completed.

19. **Preparatory Fire**. Preparatory fire may involve heavy ammunition expenditure. Insufficient fire may jeopardize surprise, while neutralizing the enemy for only a short time. It may be better to concentrate resources on covering fire or carry out brief, but intense, preparatory fire on selected targets. If a large expenditure of ammunition is planned, a dumping programme may be required.

20. **Infiltration**. A commander must plan to move his infiltration force by stealth from its assembly area to their attack positions in the enemy area. Infiltration forces may be required to assault and hold their positions until a link-up can be effected or, they may be directed to assault and subsequently disperse.

21. **Rehearsals**. If security and time permit, commanders at all levels should reconnoitre the ground over which they will attack and conduct rehearsals, preferably with all the elements of the force.

22. **Deployment.** Planning for deployment ensures that assault forces move from assembly areas, deploy into formation on the move and cross the line of departure at H-hour. If a deployment on the move is not possible, assault troops should pause only briefly in the attack position to shake-out. When a forward passage of lines is involved, the line of departure is usually the forward line of own troops. The formation adopted when crossing the line of departure depends on the ground, distance to the enemy, expected enemy resistance and effectiveness of the suppression of the enemy. A short approach to the objective over open terrain with considerable fire support, including smoke, against a relatively weak enemy favours adopting assault formation when crossing the line of departure. Otherwise, it is adopted in an assault position just prior to closing with the enemy.

ASSAULT

23. The assault is conducted as follows:

a. Lead elements cross the lines of departure at H-hour. Tanks and infantry move together or on different axes. The lead may change during the approach and final assault, depending on the ground. The infantry dismount short of, on, or beyond the objective, depending on the ground, the disposition and strength of the enemy, the number of anti-armour weapons, the extent and nature of obstacles, and the degree of surprise achieved. The aim is to retain momentum and protection until the infantry are required to fight through the position on foot.

b. At the same time, fire support resources suppress the enemy on the objective and in depth, mask his observation, and neutralize or destroy threats from counter-move forces. As assaulting troops close with the enemy, the major fire support effort is directed at the points of breaking-in.

c. In order to break-in, assaulting troops should concentrate only when they come into close contact with the enemy. Preferably supported by tanks, infantry and engineers breach the last of the enemy forward obstacles and break into his defensive system. At this point, close fire support shifts to the depth of the objective and then to targets on the flanks and objectives in depth. Throughout the break-in, momentum must be maintained so the enemy is not allowed time to react.

d. Once the break-in is made, it is vital to maintain the pressure of the attack; not only when assaulting the enemy position to seize initial objectives, but also when fighting through to take the objectives in depth. Sometimes, determined action by troops in the initial assault can clear a position, thus avoiding the use of a much larger force later on when the enemy has had a chance to recover. Attacking forces must move as rapidly as possible between areas of enemy resistance, particularly in a nuclear environment. When fighting through objectives, support weapons and command posts are priority targets. Demolition teams destroy enemy bunkers. Tanks which are not accompanying the assault forces manoeuvre to cut-off positions to prevent the enemy from withdrawing or being reinforced. Frequently, smoke is employed to the rear of an objective to hamper supporting fire adjusted by enemy reserve or depth forces.

e. Throughout the assault, a commander seeks to reinforce success, exploit favourable situations and achieve maximum penetration into the enemy defences. He does this primarily by committing his reserves and shifting supporting fire. His decision to commit his reserves must be made quickly but judiciously, as once they are committed it is difficult, if not impossible, to disengage them or direct them to a new task. Once the reserve is irrevocably committed, a commander must reconstitute or obtain a new reserve as quickly as possible, otherwise he loses his major capability to influence the battle.

CONSOLIDATION

24. Consolidation begins immediately after the enemy has been defeated and/or the objective has been taken. This includes deploying protective elements and possibly laying protective minefields; digging in, normally forward and to the flanks of the former enemy position; bringing forward additional support weapons, particularly anti-armour and air defence weapons, and mortars; altering or completing the defensive fire plan; replenishing combat supplies, particularly ammunition; and evacuating casualties and prisoners.

25. **Exploitation**. An attack frequently creates short term opportunities to maintain pressure on the enemy. Exploitation may prevent him from mounting counter-attacks, reorganizing his defence, or conducting an orderly withdrawal. A commander should plan for exploitation and be prepared to adjust his plan as the situation develops. If exploitation is possible, it must be carried out quickly so as not to give respite to the enemy. It may even begin simultaneously with consolidation to ensure that momentum is maintained and the enemy is kept under pressure. A commander must decide whether to commit depth forces earmarked previously for exploitation or direct main attack forces to exploit. He bases this decision primarily on the condition of the main attack forces, strength of the enemy and the difficulty of moving depth forces forward.

CONTROL MEASURES

26. **General**. The organization for combat should provide for coverage of the area of the attack from well behind the line of departure to the objective and beyond and should include the designation of any measures necessary to control the attack. These will depend on how the attack is to be mounted, and on how the commander wishes to control his forces, and may include the use of the following control measures.

27. **Airspace control measures**. Exploitation of the airspace over the area of operations must take account of all potential users - offensive air support, helicopters, air defence, unmanned aerial vehicles and artillery. Requirements for flight routes and areas of restricted/specialized air operations must be coordinated, usually through the Combined Air Operations Centre.

28. **Assault Line**. A control measure used to coordinate the movement of a unit or sub-unit out of the assault position and into the final stage of an attack. (AAP-6)

29. **Assembly areas/approach routes**. If time permits, forces which are to be brought together or moved up for an attack use an assembly area where they should remain only for as long as required for their administrative preparation or regrouping. These areas should be out of range of most of the enemy artillery and located so that the approach march from them to the line of departure can be effected smoothly, quickly and using concealed routes.

30. **Attack position**. The attack position is the last position held by the assaulting force before crossing the line of departure. It is an area to which troops deploy immediately before an attack and in which they may adopt their assault formations. It is occupied for as short a time as possible although final orders or briefings may be given or orientation carried out. It must be reconnoitred and secured before the assaulting force moves in. The area chosen should be easily recognizable, not under direct fire or observation and not a known or likely enemy artillery target.

31. **Axes and routes**. Axes and routes are used to indicate the course of the movement to be followed and the degree of freedom of manoeuvre permitted en route to the objective(s). Axes establish only the general direction of movement. The subordinate commander is permitted to manoeuvre freely between assigned unit boundaries. Designation of a 'route' establishes the specific direction or course which movement will follow.

32. **Boundaries**. A boundary between adjacent units will always be given in order to facilitate coordination between the units and to establish responsibility for movement, fire, reconnaissance and security.

33. **Consolidation**. In offensive operations, the process of regrouping and adjustment which takes place on the capture of an objective, in preparation for further offensive operations, or to repel a possible counter-attack. A consolidation area is a zone in which consolidation takes place. (AAP-6)

34. **Fire Base**. In an attack, a support element which, from an assigned position, engages the target by direct fire in support of the assault group's advance. (Armour Vocabulary)

35. **Killing Zone**. An area in which the enemy is forced to concentrate by use of natural and/or artificial obstacles and adequate concentration of resources, so as to create the most suitable conditions for his destruction. (AAP-6)

36. **Limit of Exploitation**. In offensive operations, a line beyond which subordinate commanders may not exploit the success of earlier stages of an attack. (AAP-6)

37. **Line of departure**. The Line of departure serves to co-ordinate the movement of the attacking forces at the start of the attack.

38. **Objectives**. Objectives are the physical object of the action taken, for example a definite tactical feature, the seizure and for holding of which is essential to the commander's plan.

39. **Objective Area**. A defined geographical area within which is located an objective to be captured or reached by the military forces. This area is defined by competent authority for purposes of command and control. (AAP-6)

CHAPTER 4

DEFENSIVE OPERATIONS

> *"All defence must be aggressive, both to mislead the enemy and to retain the high morale of our own troops"*
>
> *Field Marshal B L Montgomery*

PURPOSE

1. Defensive operations are normally undertaken when the enemy has the initiative, to prevent him from seizing terrain or breaking through into a defended area. They aim to break the enemy attack, destroy his forces and stop him from accomplishing his aim and in so doing, to establish the conditions for maintaining the initiative through offensive action.

2. Offensive action is fundamental to the defence. The defence should be creative, with every opportunity being taken to grasp the initiative and so disrupt the enemy's cohesion. For example, by holding terrain, or undermining enemy efforts and resources in one area, a commander may be able to establish the conditions for decisive action in another. The object will be to force the enemy into action that narrows his options, reduces his combat power and exposes him to a decisive offensive action.

3. A defensive operation may be required to:

   a. destroy the enemy's offensive capability and cause his attack to fail,

   b. fix the enemy in order to allow friendly forces to strike elsewhere,

   c. gain time in order to complete the preparation for a counter-offensive, and

   d. retain terrain and prevent the enemy from breaking through.

PRINCIPLES AND FUNDAMENTALS

4. **General.** A commander must consider many principles and fundamentals when planning and conducting a defence. They are frequently in conflict with one another and, consequently, the commander must determine the degree to which each will be stressed.

5. **Principles of War.** The following principles of war require emphasis during the planning and conduct of defensive operations:

   a. **Concentration of Force.** The commander must be able to concentrate his force at the enemy point of main effort. Concentration not only implies massing of forces but also massing of firepower. It includes such elements as movement, flexibility, and communications.

   b. **Offensive Action.** Commanders must maintain the offensive spirit in the defence. This implies manoeuvre, speed, and aggressiveness, the particular characteristics of armour. Patrolling and counter-attacking are also elements of offensive action.

   c. **Security.** Security is the ability to meet an attack from any direction. It is achieved by the employment of covering forces, coordination and mutual support at all levels, maintenance of surveillance and the ability to concentrate forces.

6. **Fundamentals.** In addition to the principles of war, there are several fundamentals that must be applied in defensive operations:

   a. **Information Gathering.** Information about the enemy is vital to the conduct of defensive operations. It must be obtained prior to and during the battle to give commanders the ability to judiciously concentrate their forces and

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firepower at the correct place and time. Information is gathered from four sources in defensive operations:

(1) covering forces,

(2) intelligence agencies, including target acquisition systems,

(3) patrols, and

(4) troops in contact.

b. **Use of Terrain.** The strength of a defence depends to a large extent on the selection and use of terrain. A commander's ability to analyse the terrain, determine the approaches, select vital ground and key terrain, and deploy his forces quickly determines the outcome of an operation. The selected terrain should allow the approaches to be covered by fire. It should also offer the defender concealment and protection, while restricting the enemy's observation and deployment capability. Preferably, a defence area contains natural barriers which can be reinforced by man-made obstacles. Terrain is classified as:

(1) **Open Terrain.** This terrain is relatively flat and unencumbered by forests, built-up areas, waterways, and other natural barriers. It is covered easily by surveillance and can be dominated by fire. Such terrain requires the construction of barriers to restrict the movement of enemy forces. These areas are defended best by armoured forces and elements equipped with long range anti-armour weapons.

(2) **Close Terrain.** This terrain may have considerable relief and may be broken by forests, built-up areas and other natural barriers. It restricts an attacker's movement and provides good concealment and protection for the defender. Natural obstacles can be improved to further delay the attacker and canalize his movement. These areas are defended best by forces strong in infantry.

(3) **Key Terrain and Vital Ground**. A commander must designate his vital ground, i.e., that ground which, if lost, makes the defence untenable. He then identifies the main approaches to his vital ground and the key terrain which dominates or blocks those approaches. From this assessment, he identifies the key terrain which is to be held. He then groups and tasks his force accordingly. This process is repeated at each lower level of formation and leads to coordinated dispositions which fit the overall plan. Normally vital ground is relative to the level of command. For example, a brigade commander's vital ground may only be key terrain from the perspective of the division commander. Key terrain is ground which offers the holder a marked advantage. In situations where the corps vital ground is in a brigade area, the same ground is vital ground both to the brigade and to the division. Regardless, if the defence within a specified sector is to continue, the vital ground must be held or, if lost, recaptured by forces of a higher formation. A commander selects his vital ground, key terrain, and killing zones by:

(a) identifying obstacles at the FEBA,

(b) determining approaches to the FEBA,

(c) anticipating enemy objectives,

(d) identifying obstacles in the main defence area,

(e) completing approach descriptions, and

(f) ranking the approaches in terms of their likelihood of use.

c. **Coordination.** All aspects of the defence require coordination, including passage of lines by covering and counter-attack forces, boundaries, liaison, barrier plan, fire support, air defence, airspace control, and combat service support. Coordination takes place during planning and throughout the conduct of an operation. It is a never-ending task to which a commander and his staff must devote considerable effort. Coordination is particularly important during combined operations. Often, the enemy seeks to attack along boundaries which may be shared by different nations. A commander achieves and maintains co-ordination by:

(1) understanding his superior commander's concept of operations,

(2) understanding the doctrine and procedures of the adjacent ally,

(3) selecting boundaries so that they do not increase the coordination problem,

(4) selecting coordinating points along the boundary, and

(5) exchanging information and liaison detachments, and planning for mutual support.

d. **Mutual Support.** This is achieved when the gaps between defended positions are covered by fire, preferably direct fire, so that the attacker cannot assault one position without being subjected to fire from at least one other. The degree of mutual support achieved depends upon the terrain, visibility and range of weapons. Ideally, the frontages that units must defend are related to their ability to provide mutual support. A commander must balance the need for mutual support with the requirements of depth, dispersion and mobility, particularly under a nuclear threat. Mutual support increases the strength of the defence and therefore influences the selection of boundaries and the location of battle positions. It also gives another advantage to the defender, since an attacker must disperse his covering fire to neutralize the supporting positions.

e. **Depth**. Defence in depth causes an attacker to execute successive stages of his operation without detailed reconnaissance. It also helps to surprise an attacker and draw him into committing his next echelon or reserve. It absorbs the attacker's momentum and thus prevents a breakthrough. It also localizes penetration and facilitates blocking. Finally, it allows a defender time to determine the attacker's main thrust and to counter it. The depth of the defence area should be proportional to the strength, mobility and firepower of the attacker and the frontage to be defended. Depth is obtained by:

(1) employing protective elements well forward to cover approaches;

(2) employing long range resources, including electronic warfare elements and tactical air support, to engage targets deep in the area of influence, which are important to the continuity, momentum, sustainability, and command and control of the attacker;

(3) siting battle positions and obstacles in depth throughout the area; and

(4) positioning and moving reserves, fire support elements, and combat service support units.

f. **Manoeuvre.** This is the decisive element of a defence. By combining movement with fire, the defender can make the best use of terrain to inflict high losses on the attacker. Manoeuvre enables a commander to concentrate sufficient combat power to achieve superiority over the enemy.

g. **Firepower.** The effectiveness of the defence is based primarily on the planned fire of all weapons. The fire of manoeuvre units, conventional and nuclear artillery, armed helicopters, and tactical air and naval elements must be complementary, coordinated, and applied at the right time and place. Firepower also assists or enables a commander to concentrate sufficient combat power to achieve superiority over the enemy.

h. **Use of Reserves.** Reserves are uncommitted forces which a commander requires to maintain freedom of action to deal with anticipated and unexpected developments. They provide flexibility and balance. Their main functions are to reinforce, block, counter-attack, replace other units and protect flanks and rear areas. Once the reserve has been committed, a new one must be constituted or obtained. It may be necessary to reconstitute a reserve from troops in areas least threatened or from depth forces which are not in contact with the enemy. Although this entails risk, it must be weighed against the requirement to retain the ability to concentrate decisive combat power.

7. **Terrain**. The strength of the defence depends to a great extent on the selection and use of the terrain. Once the terrain has been chosen, every effort must be made to use it to the best advantage. This can only be achieved if it is known in detail by every commander down to the lowest level.

a. Terrain should be selected which allows the best use to be made of fire, concealment, protection and movement by the defender, but which restricts the ability of the enemy to observe and deploy his forces. Preferably, the area should offer opportunities to use man-made barriers and obstacles which can be used to enhance the ground's natural barriers or to cover areas which lack such natural features. Terrain may be considered as being of two general types:

(1) **Open Terrain**. Predominantly open, flat terrain which can relatively easily be covered with surveillance and dominated by fire. Such terrain requires the construction of extensive barriers if the movement of enemy forces is to be restricted. These areas can best be defended by forces strong in armour, supported by long range anti-tank weapons.

(2) **Close Terrain**. Forested, built-up or broken terrain which presents greater difficulty to the attacker's ground mobility. It slows his movement and provides good concealment and protection for the defender. Usually the defender can find natural obstacles which can be enhanced to impede the enemy and canalize his movement. If the enemy intends to seize this type of terrain he will require strong, dismounted forces. These areas can best be defended by forces strong in infantry.

(3) In making his estimate of the situation, the commander will take account of key terrain, the seizure/retention of which will offer a marked advantage to either the attacker/defender. In the development of his estimate, he will designate as vital ground any key terrain that is of such tactical significance that its loss will make the defence untenable. Such ground must be regained if lost.

FORMS OF DEFENSIVE OPERATIONS

8. Whilst defensive operations may take a wide variety of forms, they can essentially be divided into two broad categories: **mobile defence and area defence.**

a. **Mobile Defence**. Mobile defence focuses on the destruction of the attacking force by permitting it to advance to a position which exposes it to counter-attack and envelopment. The emphasis is on defeating the enemy rather than retaining or retaking ground. Mobile defences employ a combination of offensive, defensive and delaying action necessitating the forward deployment of relatively small forces and the use of manoeuvre supported by fire and obstacles to wrest the initiative from the attacker after he has entered the defended area. At divisional level the defended area could be up to 100 km in depth. Consequently the defending force must have mobility equal to or greater than the enemy's and the ability to form a large reserve which will conduct the decisive counter-attack.

b. **Area Defence**. Area defence focuses on the retention of terrain by absorbing the enemy into an interlocked series of positions from which he can largely be destroyed by fire. The emphasis here is on retention of terrain or its denial to the enemy. Since, unlike mobile defence, area defence will not necessarily produce outright destruction of the enemy, it presumes some other simultaneous or subsequent operation to achieve decisive defeat of the enemy. In an area defence, the bulk of the defending force are deployed to retain ground, using a combination of defensive positions and small mobile reserves. Commanders organize the defence around the static framework provided by the defensive positions, seeking to destroy enemy forces by interlocking fire or by local counter-attack on enemy units penetrating between defensive positions. Unlike mobile defence, for which considerable depth is essential, area defence may be conducted in varying depth depending on the mission, the forces available and the nature of the terrain.

9. Although these descriptions convey the general pattern of each type of defence, both forms employ static and dynamic elements. Defending commanders may well wish to combine both patterns, using static elements to delay, canalize, cause attrition to, and ultimately halt the attacker by launching spoiling attacks or counter-attacks. The balance among these elements will depend on the unit's mission, composition, mobility, relative combat power and on the character of the battlefield. The fundamental difference between the two forms of defence is that mobile defence seeks to defeat the enemy's attack by destruction, whereas area defence seeks to defeat it by denial.

CONDUCT OF THE DEFENSIVE OPERATIONS

10. **Stages Of The Defensive Battle**. The defence is a single battle, fought in two stages leading to an offensive operation. These stages are:

a. covering force battle; and

b. main defence battle, including countermoves (reinforcing, blocking and counter-attacking).

11. **Covering Force Battle**.

a. **General**. A covering force fights a battle of movement and there will seldom be time to prepare battle positions. Maximum destruction is inflicted on the enemy so that he arrives at the main defensive area dislocated and in a state of undermined cohesion. Although the task of the covering force is very demanding, casualties and delay can be imposed on the enemy out of all proportion to the size of the covering force. This is particularly so if it is handled skilfully and makes use of favourable ground. In so doing, the covering force can deceive the enemy as to the location of the main defensive area and even lead him to give away his intentions.

b. **Planning Considerations**. A division may have to provide its own covering force. It may alternatively be part of a Corps defence plan acting as the covering force itself or as part of the main defence force with another formation acting in this role. Similarly, a brigade can act as the covering force for a division or a corps. In any case, there will be only one designated covering force beyond the handover line as this negates the need for multiple handovers between successive levels. This however still provides a commander the option of employing his own 'covering force' in the main defensive area up to the handover line. When a formation is responsible for the covering force battle, it must understand how it is related to the main defence battle and the impact that his operations may have on the higher commander's intent and concept of operations in the main defence area. Planning must incorporate contingencies to account for unexpected results of the covering force battle.

c. **Tasks**. The commander will normally establish a covering force to form the first echelon of a defence in depth. A commander avoids assigning conflicting tasks to a covering force. The primary tasks may be:

(1) gaining information on the location, direction and weight of the enemy attack (his main effort);

(2) gaining time;

(3) attrition - inflicting casualties on the enemy;

(4) providing security; and

(5) disruption - causing damage to the enemy's cohesion.

d. **Size and Composition**.

(1) The size and composition of the covering force will depend on the mission, enemy, terrain and available forces. Wherever possible, the forces used as a covering force should not be required immediately in the main defensive area. The covering force should be an all-arms grouping which is self-contained in all respects. These factors take on added significance and complexity depending on the course of action chosen by the enemy, the depth and width of the area available for covering force battle and the time required to prepare the positions in the main defensive area.

(2) The planning and conduct of delaying operations is considered in more detail in chapter 5.

e. **Battle Handover**.

(1) Forces in the main defensive area assume responsibility for the battle at the handover line. As the covering force approaches the handover line, it may become necessary to increase the intensity of the fire support from the defence area to allow the covering force to disengage. Both direct and indirect fire assets from the main defence force will provide support to cover the redeployment of the covering force and to cover lanes in the barriers. This rearward passage of lines through the forward positions in the main defence area must be carefully planned and coordinated.

(2) The covering force passes through the main defensive area forces as quickly as possible to minimize their vulnerability to enemy fire. Combat support and combat service support resources of the covering force should move to the rear as early as possible to avoid hampering the movement of the combat forces.

(3) In non-contiguous areas of operations, commanders must consider the partial redeployment of the covering force. Ground should only be yielded under pressure and the requirement for information may dictate that elements of the covering force remain forward of the main defensive area.

(4) Details for the rearward passage of lines and the change of responsibility for the conduct of operations in the covering force area are covered in chapter 6, Transitional Operations.

12. **Main Defence Battle**.

a. **General**. The decisive battle is the main defensive battle which is fought in the main defensive area. Here the effects of deep operations and covering forces, coupled with the efforts of rear operations combine with those of the main defence force to defeat the enemy. The aim of the main defence battle is to stop the enemy advance by a combination of firmly held battle positions within the main defence area together with the use of obstacles and reserves. Tactics in the main defensive area will vary and there can be no set course of action. Much of what occurs will depend on a flexible plan incorporating the principles of mobile and/or area defence.

b. **Battle Handover**. Gaps or lanes in barriers that have been left for the redeployment of the covering force must be guarded and arrangements must be made to close them. Once the covering force has completed its handover of the battle to the main defence force, the commander must consider it's subsequent employment. He may decide to employ it immediately as his reserve which will allow him to release his initial reserve for other tasks. It may be some time however, before the covering force is ready for commitment. A more likely option therefore is to designate it as the formation reserve once it has been reconstituted. Much will depend on how the main defence battle is progressing.

c. **Initial Actions**. Once the enemy has reached the main defensive area, he will try to find weak points and attempt to force a passage, possibly by a series of small-scale attacks. As the enemy attack begins to develop, the forward units will engage them. As the battle progresses, the enemy advance may be slowed and he may become concentrated by the barriers and the battle positions, thus presenting good targets for defensive fire and offensive air support. The maximum weight of fire must be brought to bear at this stage of the battle.

d. **Conduct of the Battle**. The battle will be fought by the formation's subordinate units using direct fire, indirect fire and manoeuvre against the assaulting enemy forces. The commitment of reserves must be controlled. The conduct of deep operations against echeloned enemy forces must be coordinated. The employment of engineers and of sustainment resources must be clearly defined.

e. **Penetration.** Undefended areas may be unavoidable between battle positions, but they must not be left where the probable main enemy effort is expected. They must be kept under surveillance, covered by fire or, where possible, blocked by barriers. These responsibilities must be clearly defined. If the enemy succeeds in penetrating the main defence area, the defender must block the penetration immediately and destroy this enemy force as soon as possible, hence the need for reserves with battlefield mobility. Action may be extended in depth in order to counter enemy penetrations which cannot be stopped further forward. In a mobile defence the commander may allow penetration in a selected area in order to launch his striking force at the appropriate time and place. Any decision to redeploy must take into account the situation prevailing in adjacent defence areas.

13. **Employment of Reserves**. Although it should be possible to designate reserves at every level to deal with the unexpected, commanders at brigade level and above must earmark mobile forces as reserves for offensive tasks which are an integral part of the defence concept. If it becomes apparent in the course of the battle that the cohesion of the defence cannot be maintained, the next higher commander may assign additional reinforcing, blocking or counter-attack forces from his own resources Once committed, another reserve must be found, if necessary from troops not actually in combat. The movement of reserves will be a priority target for the enemy and thus protection will be vital to a successful committal. Where the threat from the air is particularly high, there will be a requirement for air defence assets to be assigned to reserves' security.

14. **Purpose**. The primary purpose of a reserve is to preserve the commander's freedom of action. The reserve is an uncommitted force, at least initially. It may have a series of contingencies, although a commander will not commit his reserve until he has a reasonable understanding of the enemy intentions. If the commander must commit his reserve in order to counter an unexpected enemy action, then he must advise his superior commander who must than re-consider the employment of his reserve and the impact this will have on his superior commander's intent. Reserves are commonly used for:

a. **Reinforcement**. Forces which are engaged in combat are provided with additional combat power from the designated reserve unit or formation or from any uncommitted forces.

b. **Blocking.** Blocking is the deployment of forces to stop the attacking force which has broken through the forward positions. The timing of the deployment of a blocking force will depend on the way the enemy action develops, with particular regard to his strength, speed and direction of advance. This must be analysed and related to the location and size of the blocking force available, its reaction time and the time available to prepare blocking positions. Often, it is only by blocking that the enemy can be halted, in preparation for a counter-attack. Airmobile forces are often particularly suited to this role allowing an armoured reserve to be retained for the counter-attack.

c. **Counter-Attack**. The counter-attack exploits opportunities to strike the enemy at a decisive time and place to defeat him. The opportunity to launch a counter-attack will be fleeting and therefore a commander and his forces must be mentally and physically prepared for the task. Its planning is a basic and essential part of defence and it must be updated as the situation develops. Possible options in a counter-attack could include the cutting off or destruction of enemy units, recovery of lost ground, or any other action that seeks to restore a situation. Once the commander has decided that a counter-attack can be mounted, he will launch it with the full force of all available resources necessary to ensure success.

d. **Spoiling Attacks**. A reserve may be employed in carrying out a spoiling attack with the intention of preventing or delaying enemy attacks. They are normally launched against enemy forces that are forming or assembling for an attack. Spoiling attacks are usually conducted against opportunity targets with the objective of destroying enemy personnel and equipment, not to secure terrain. The following basic considerations affect the use of the spoiling attack:

(1) The commander should designate the size of the force to be employed and the acceptable risks.

(2) Spoiling attacks should not be conducted if the loss or destruction of the force jeopardises the ability of the reserve to accomplish its primary mission.

(3) Mobility of the force available for the spoiling attack should be equal to or exceed that of the enemy force.

(4) Deep operations may be necessary to ensure the success of the spoiling attack.

e. **Mobile Defence**. If the commander decides to conduct a mobile defence he will still need to designate a reserve. It may be called upon to carry out any of the above tasks in order to help the fixing forces shape the battlefield. Attack helicopters are ideal for this role. The striking force is then committed to strike the decisive blow.

f. **Commitment**. The decision on how and when a reserve is to be committed is one of the most important a commander must make. Reserves should be located where they are best able to react when they are required. Routes may need to be planned and prepared to cover likely deployment options. The commander will designate his decision criteria to assure the timely commitment of his reserves. These will need to be updated as the battle progresses and the enemy's intentions become more apparent. When it is committed, the reserve action may well become the formation main effort. The success of the reserve action is likely to depend on its timely commitment, mass, surprise, speed and boldness.

15. **General Considerations**

a. **Preparations**. Preparations for the defence should take place concurrently at all levels and include such important activities as:

(1) reconnaissance and counter-reconnaissance within the formation's area of operations;

(2) planning and shaping the battlefield through the integration of natural and artificial obstacles;

(3) planning the coordination of direct and indirect fire support;

(4) deciding the employment of air defence;

(5) establishing liaison between flanking and subordinate formations;

(6) continuous refinement of the plan by wargaming, if time permits;

(7) rehearsals of all activities such as battle handover and counter-moves, if time permits; and

(8) production of intelligence in order to determine the time that the enemy will attack, his main effort and where his command and control systems are.

b. **Counter-reconnaissance**. Common to all defensive operations is the requirement to destroy or neutralize (e.g., by deception and the use of electronic warfare) enemy reconnaissance. Plans must be made for its early destruction in all sectors of the battlefield but these plans must not result in the premature disclosure of key elements of the defence. Success against enemy reconnaissance will help maintain the security of reserves, achieve surprise in offensive action, and retain the integrity of fire support systems and command and logistic infrastructures. Measures that can be taken against enemy reconnaissance include:

(1) Use of the covering force to destroy or neutralize it as early as possible so that the dispositions in the main defensive area are not disclosed. This requires the coordination of surveillance and target acquisition systems with direct and indirect weapon systems.

(2) Protection of friendly dispositions through camouflage, concealment and defensive command and control warfare in order to deny information to the enemy. This is particularly important once enemy reconnaissance has penetrated the covering force. Enemy reconnaissance should be engaged within a framework of patrols and ambushes, forward of and between battle positions.

(3) The use of aviation might be considered if sufficient assets are available although targets are likely to be dispersed and exposed only for short periods.

(4) Indirect fire can be effective in terms of neutralization and destruction but it is more likely to be committed to larger and higher priority targets. Assets are likely to be limited and 'unmasking' will jeopardize security.

(5) Special care needs to be taken to protect the security of reserves and high value targets. Camouflage and deception measures should be employed but critical reserves may require forces assigned to them specifically for protection against enemy reconnaissance.

(6) In the rear areas, there is a requirement to be diligent in seeking out and destroying reconnaissance elements. Medium reconnaissance and reserves may be used if they are not committed to other tasks.

c. **Deep Operations**

(1) Throughout the battle, enemy forces in depth will be attacked to prevent or delay their deployment. Indeed, deep, close and rear operations will be fought simultaneously and there is a requirement therefore for the commander to assign priorities, particularly for combat support and combat service support.

(2) The commander must prevent the enemy from concentrating an unacceptable level of combat power at any given point by pre-emptive, systematic and sustained attacks on enemy echeloned forces. Enemy forces not yet in contact will be monitored throughout the commander's area of interest and engaged throughout the depth of his area of influence. In so doing, the commander intends not only to destroy and delay the enemy force, but to disrupt the enemy commander's plan and seize the initiative. This attack on the enemy's forces in depth is complementary to both the covering force and main defence battles. Integration of the available combat support assets to conduct this disruption requires extensive and continuous coordination between air and ground commanders but will yield a significant capability to see and strike deep targets and is vital to the successful conduct of deep operations.

d. **Siting**. Battle positions should, whenever possible be mutually supporting. They should be sited such that they are hidden from direct enemy observation and fire. The defender should avoid positions which are easily identifiable and easy to engage such as forward edges of woods, isolated villages and other obvious features. Battle positions should dominate the local area by direct fire. Such positions provide a framework for mobile forces operating between them.

e. **Strongpoints**. A strongpoint is a fortified battle position. It is essentially a concentration of anti-armour weapons that cannot be easily overrun or by-passed. It can be defeated by the enemy only with the expenditure of much time and overwhelming forces. It will be located on a terrain feature critical to the defence, or one that must be denied to the enemy and can be used to shape or contain the attacker. Extensive engineer support may be required in the preparation of strongpoints.

f. **Obstacles**. Whatever the form of defence, the skillful use of natural and artificial obstacles will be essential to success. Their purpose is to enhance the tactical commander's own plans by denying the enemy the freedom of manoeuvre he requires in order to gain and maintain the initiative. The integration of obstacles with firepower will be used to support the commander's manoeuvre plan and to shape and restrict the enemy's manoeuvre options. Artificial obstacles will be used to shape the battlefield. The principles to be observed are:

(1) Barrier control measures must be coordinated at all levels, but detailed siting will be confirmed by subordinate commanders.

(2) Obstacles must complement and not dictate the design for battle. As such, the commander's intent for obstacles, that is to fix, disrupt, turn or block, must be clearly enunciated.

(3) Wherever possible obstacles must be covered by direct fire. When this is not achievable they must at least be covered by observers able to call for indirect fire.

(4) Artificial obstacles must not hinder the ability of forces to operate. Counter-attacks and the rearward passage of covering forces must be granted particular attention.

g. **Killing Zones**. Killing zones are designated by commanders at all levels based upon their mission and the analysis of the terrain and enemy. They are areas where the terrain, reinforced with artificial obstacles, allows the defender to fix and destroy enemy forces which have been forced to concentrate. As such, they are an integral part of close, deep and rear battles and their purpose must be evaluated in concert with the commander's plan or the ability of the terrain to support the shaping of the battlefield, the fixing of the enemy and the concentration of the required combat power.

h. **Anti-armour Planning**. When the most dangerous enemy ground threat is from armour, planning for anti-armour defence will be the first consideration when laying out a defensive posture. It must be coordinated by the commander himself. The following points should be applied when siting anti-armour assets:

(1) **Depth.** The various ranges in the family of anti-armour weapons provides an opportunity to have depth in the killing zone with over-lapping arcs of fire. In addition, the anti-armour plan should have depth deployment positions on all likely enemy approaches so the mobile anti-armour weapons may have multiple engagements against an attacking force which is not destroyed in the initial engagements.

(2) **Mutual Support.** The anti-armour plan should ensure that a force attacking any position can be engaged with anti-armour weapon fire from adjacent and mutually supporting positions. Thus the availability of positions for this mutual support should be a consideration in the selection of battle positions. Coordination of all weapon systems in battle positions is a constant requirement. Anti-armour weapons are employed in pairs or groups to allow for mutual support in providing local protection, observation and covering fire as well as to allow disengagement and movement.

(3) **Security.** In battalion and battle group areas of operations, mobile anti-armour weapons normally operate outside of the company battle positions. They must therefore provide their own local protection and have the ability to react to a threat. Although anti-armour weapons have small crews, they do have good surveillance capabilities and a good mobility. As well, the same capabilities of all the deployed anti-armour weapons contribute to the security of the area of operations and the forces within it. Anti-armour weapons can be used to patrol or picket areas instead of reconnaissance troops.

(4) **Integration of Anti-armour Weapons.** Every weapon, properly manoeuvred, properly placed and properly employed can be used as an anti-armour weapon. In the same ways that a family of anti-armour weapons is more effective than just one type of anti-armour weapon, the integral use of all weapon systems enhances the effectiveness of each to produce a greater net effect. For example, employing anti-armour weapons to fire into a killing zone, with

minefields to canalize and inhibit movement, with artillery and mortars to keep the armour closed down to restrict their all-round observation, with smoke to further reduce their visibility, and with attack helicopters and fighters to engage from unexpected approaches produces a significantly better overall effectiveness than the employment of each system alone. It also degrades the enemy's ability to defeat our systems which would be vulnerable if employed alone. Short range anti-armour weapons should be integrated with other weapon systems in battle positions. Anti-armour weapons should be integrated into the surveillance and target acquisition plan both to contribute observation capability and to receive information about the location, type and number of targets. Since anti-armour weapons rely greatly on their redeployment capability, the anti-armour plan should be coordinated with the barrier and movement plans to ensure they are compatible.

(5) **Concentration.** It is not likely that there will be enough anti-armour weapons to be strong everywhere all the time. The anti-armour plan should allow for the concentration of sufficient killing power at the locations and times which provide the greatest advantages. This must be accomplished without the enemy being able to detect and counter the concentration. A coordinated plan, secure communications, covered approaches, speed of movement, good drills and rapid dispersion are some of the requirements for effective concentration of anti-armour weapons. The use of tank hunting patrols and of helicopter insertion of dismounted anti-armour weapons are means of achieving concentrations at unexpected places or times. By concentrating selectively on one of the enemy's critical assets, such as his armoured personnel carriers, his engineer vehicles or his command and control vehicles, it is most likely that his cohesion will be degraded.

i. **Command and Control Measures**.

(1) The commander should:

(a) reconnoitre the area of responsibility or review the terrain analysis before he determines his concept of operations and plans the layout;

(b) maintain, wherever possible, personal contact with his subordinates. In times of stress, a visit or a person-to-person conversation will do much to instil confidence and to impress the commander's personality upon his command.

(2) Close liaison and good communications are prerequisites to a successful defence:

(a) Coordination points will be designated and liaison established at key levels.

(b) In combined operations, it is particularly important that commanders of temporarily assigned units make personal contact with their superior commander as soon as the situation permits.

(c) Before contact is made with the enemy, electronic emissions must be kept to a minimum. Forces not in contact with the enemy should be on radio silence. Nevertheless, alternate communications must be maintained at all levels.

(d) Because of the threat posed by enemy electronic warfare, cable and radio relay communications are the most important means of communication. After enemy contact and the relaxation of radio silence, radio communication will become significant, but traffic should still be kept to a minimum.

(3) The following control measures may be employed in defensive operations:

(a) boundaries and control lines such as the handover line and phase lines,

(b) fire support coordination measures,

(c) airspace control measures,

(d) coordination points,

(e) barrier restricted areas,

(f) battle positions, blocking positions and assembly areas,

(g) killing zones, and

(h) controlled routes.

SUMMARY

16. Attempting to defend everything defends nothing. The defence plan must therefore be carefully conceived to ensure that the enemy attack can be halted and that an opportunity be found to seize the initiative and undertake offensive operations. The importance of cohesion to the overall effectiveness of the defence is particularly significant and if the defence is to remain viable. The commander must be prepared to adjust the layout to meet changes in the threat in order to maintain cohesion.

CHAPTER 5

DELAYING OPERATIONS

> *".....and it is a maxim in general not to suffer ourselves to be dictated to by the enemy....a careful utilization of ground, strong ambuscades wherever the boldness of the enemy's advance guard, and the ground, afford opportunity; in short, the preparation, and the system of regular small battles - those are the means of following this principle"*
>
> *Clausewitz*

PURPOSE

1. A delaying operation is "an operation in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage without, in principle, becoming decisively engaged" (AAP-6). It is likely to be carried out in less than ideal conditions; the air situation may well be unfavourable and the initiative will tend to be with the enemy. Nevertheless, in order to enhance the chances of success, every opportunity should be taken to initiate aggressive action, to seize the initiative from the enemy and to force him to adopt a defensive posture. This type of operation is arguably the most difficult to conduct and needs, therefore, to be thoroughly understood by all involved.

2. Delaying operations can be conducted independently or within other operations, principally as a prelude to a defensive operation and carried out by a covering force. It is also possible that transitional phases will be involved, the most likely being a withdrawal and a rearward passage of lines. It is also conceivable that other transitional phases, such as a meeting engagement, could occur. A delaying operation is likely to be conducted in one of the following circumstances:

   a. as a covering force for defending or withdrawing main bodies;

   b. the advance guard or covering forces when encountering superior forces;

   c. an economy of force operation conducted to hold an enemy attack on a less critical avenue of approach;

   d. a deception measure to set up a counter-attack; and

   e. as part of a mobile defence.

PRINCIPLES AND FUNDAMENTALS

3. The following Principles of War are of particular concern in the delay:

   a. offensive action, and

   b. security.

4. In a delay, a commander attempts to inflict heavy losses on the enemy while preserving the combat power of his own forces. No decision is sought, as the commander is attempting to gain time. In doing so, he must always determine whether the time to be gained justifies the reduction of his combat power. In developing his concept of operations, a commander must consider the following fundamentals: offensive action, manoeuvre, balance, maintenance of contact, use of terrain, time and space, security and protection. The fundamentals of the delay are:

   a. **Offensive Action.** Although the general initiative rests with the enemy, the delaying force should create and seize opportunities for offensive action. Enemy forces which overreach themselves or expose a flank are particularly vulnerable. Limited attacks are undertaken when losses or damage can be inflicted on the enemy with low risk.

   b. **Manoeuvre.** A delaying force uses manoeuvre so that maximum fire can be applied at long range to surprise and confuse the enemy and to make him pause and deploy. Such fire imposes caution and causes casualties without revealing

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the disposition of the delaying forces. A delaying force also uses manoeuvre to disengage and move to new positions when the enemy concentrates superior combat power.

c. **Balance.** The force must be organized so that it can deal with unexpected situations. This requires a judicious balance among those troops maintaining surveillance, conducting reconnaissance, delaying the enemy, withdrawing to new delay positions and acting as reserves.

d. **Maintenance of Contact.** A delaying force must maintain contact with the enemy to avoid surprise, estimate his rate of advance and determine his main point of effort.

e. **Use of Terrain.** A delaying force must use the terrain so that the enemy is compelled to conduct time-consuming and costly operations in order to advance. The terrain selected should have natural or easily improved obstacles, which can be used to canalize the enemy or slow him down. It should also offer good observation and fields of fire and allow easy disengagement.

f. **Time and Space.** A commander should know either the minimum length of time that he must delay, based on the requirement of friendly forces to prepare positions, or the percentage of his force that he must preserve, based on his subsequent tasks. The area allocated must have sufficient depth to allow for the conduct of delaying operations; otherwise the duration of the delay must be shortened, or there must be a compensating increase in the strength of the force or an acceptance of high losses which could lead to decisive engagement.

g. **Security and Protection.** They are achieved by concealment, camouflage, deception, communications security, electronic warfare, counter-intelligence and the protection of bridges, crossing sites and critical points along axis required for rearward movements.

CONDUCT - GENERAL CONSIDERATIONS

5. The delay does not fit neatly into a series of stages. Rather it comprises a series of coordinated offensive and defensive actions, each being broken off when the enemy presses too hard and close to the point where the delaying forces are at risk of being decisively engaged. The action is fought by forces manoeuvring to engage the enemy from previously selected positions in depth and then disengaging and moving to the next position before the enemy can concentrate sufficient combat power to overrun or bypass friendly forces. High tempo is particularly significant in delaying actions. The delaying action ends with the disengagement of the delaying force at the handover line.

6. In a delaying operation, a commander faces several conflicting requirements. He attempts to inflict heavy losses on the enemy, but seeks to preserve the combat power of his own forces. He attempts to gain time, but seeks to avoid decisive engagement. He must constantly determine whether the time to be gained justifies the reduction of his combat power. To make these decisions, he must be told either the minimum length of time that he must delay the enemy or the percentage of his force that he must preserve based on his subsequent tasks because he cannot do both. The area he is allocated must have sufficient depth to allow delaying operations to be conducted; otherwise the duration of the delaying operation must be shortened, the strength of the force increased, or the risk of decisive engagement with the high potential for losses.

7. A delaying operation is conducted by a combination of defensive and offensive action. Initially, a commander establishes contact with the enemy across the front using reconnaissance elements. At the same time, he prepares a series of delay positions in depth to the extent that time permits. Depending on the mission, forces occupying the delaying positions should be sufficiently strong in combat power to mislead the enemy into believing that he has encountered the battle positions of a main defence area and must be sufficiently strong to cause the desired delay. In the selection of delaying positions and the organization of the delaying force, the commander will consider creating opportunities for offensive action.

8. As the enemy pushes the reconnaissance elements back, he is engaged with maximum fire at long range from elements of the delaying force which manoeuvre in the first line of delay positions. This fire is applied to surprise and confuse the enemy, to make him pause and deploy, to impose caution and cause casualties, and to compel him to make time-consuming and costly preparations for an attack. While the enemy is engaged at long range, other elements of the delaying force may conduct counter-moves, especially against forces which have overreached themselves or exposed a flank. Limited attacks are undertaken when losses can be inflicted on the enemy at low risk.

9. When a decisive engagement is imminent, the commander manoeuvres to disengage or to fight his way back to the next line of delay positions. Contact is reassumed by the reconnaissance elements, which in the meantime have been repositioned for the task, or is maintained by the forces fighting their way back. Contact must be maintained in order to avoid surprise, to estimate the enemy's rate of advance and to determine his main effort. Crossing sites, particularly bridges, and other critical points along routes or axis required for rearward movement should be protected.

10. The same general sequence of activity is repeated until the mission is accomplished. At the handover line, the delaying force attempts to break contact and the responsibility for dealing with the enemy is assumed by the force in place.

11. **Objectives.** When planning a delaying operation the objectives of the commander are:

a. to slow down the enemy's advance by inflicting casualties which reduce his offensive capability in order to gain time for subsequent operations;

b. to manouevre the enemy into areas where he is vulnerable to attacks/counter-attacks, thereby gaining the initiative;

c. to avoid combat under undesirable conditions; and

d. to determine the enemy's main effort.

12. **Organization**. In the delay, the delineation of the Area of Operations is similar to that of the defence. The difference is that the rear boundary is defined by a handover line where responsibility for the enemy is passed to another force. Unit and formation frontages will tend to be larger than in the defence. The commander of the delaying force has to decide which parts of the assigned Area of Operations he will use, which parts he may abandon earlier than others, and which ones need only be monitored.

13. In essence, a delaying operation must have a simple and aggressive plan taking the following into account:

a. control,

b. maintenance of morale, and

c. delay to be imposed on the enemy.

14. The following points must be specified in the plan:

a. what must be done i.e., the commander's intent;

b. task organization;

c. when, where and how the operation is to be conducted, i.e., the concept of operations. This should include how much delay is to be imposed on the enemy;

d. measures to be taken to cover gaps and flanks;

e. phase lines to be used to control the operation; and

f. main effort.

CONCEPT

15. A delaying force will not only make use of the depth of the area assigned but it will also attack the enemy in his depth. If there is no opportunity to attack the enemy's flank or rear, it may be sufficient to position combat troops so that they can engage the enemy along his most likely approaches. Gaps must be kept under surveillance and provision must be made for quick reaction, should the enemy decide to utilize them for his advance. The commander must take into account that he may not always have a clear picture of the enemy and that the situation may change frequently and rapidly. He must therefore ensure that he has a continuous flow of sound and timely intelligence, a well organized reconnaissance, uninterrupted communications and a strong

reserve. By these means, the commander can ensure that he maintains his freedom of action. He must utilize the forces and means available to him in such a way that the enemy is repeatedly faced with unexpected situations. This requires flexibility and agility as well as strong reliance on the subordinate commanders' capabilities to determine on the spot the most suitable action to be taken. Combat troops will normally conduct the delay by a combination of techniques, both offensive and defensive.

16. **Reconnaissance**. The delaying force requires timely and continuous information about the enemy. This necessitates the employment of reconnaissance elements which immediately establishes and maintain contact. These elements should be of sufficient strength that they cannot easily be brushed aside by the enemy and that it can provide security through the conduct of counter-reconnaissance. At the start of hostilities, these forces may be the only elements on the ground that can provide accurate information to identify enemy activities. As the battle develops, a part of the reconnaissance element may be used to provide security and protection of flanks and the gaps between the main elements of the delaying force.

EXECUTION OF THE DELAY

17. **General**. At the earliest opportunity, the delaying force will engage the enemy, inflicting casualties by providing maximum fire in combination with mobile actions, including quick and limited counter-attacks against enemy troops who have overextended themselves or have exposed an open flank. Opportunities are most likely to occur when the enemy has just crossed an obstacle or is temporarily separated from his follow-up troops.

18. Every advantage offered by the terrain should be exploited. The rapid advance of the enemy, particularly along roads, should be impeded, causing him to bunch and offer himself as target. Every opportunity must be taken to surprise him and to ambush him, avoiding becoming decisively engaged, by timely manoeuvre.

19. Even if elements of the delaying force are in danger of being overrun, or seriously outflanked, they will not disengage unless ordered or unless it is in accordance with the commander's intent. However, it is an important responsibility of the commander by timely disengagement, to prevent parts of his force being cut off and destroyed.

20. The fluid situation prevailing during delaying operations will necessitate constant and close coordination between adjacent units to ensure that:

a. positions and manoeuvre of own troops is known;

b. mutual support of fire is possible;

c. beginning and end of specific operations are known; and

d. awareness of the situation and probable intention of the enemy are known.

21. **Disengagement.** Troops withdrawing from a position must attempt to break contact with the enemy. This can be achieved by withdrawing through a position occupied by another unit, or suddenly breaking off the engagement when the enemy is unable to follow up immediately. The important decision is to judge the correct moment when to withdraw from each position. Withdrawal must not be done too early as it would result in failure to achieve maximum delay; and not too late so that there would be a risk of unnecessary casualties or of being overrun. Counter-attacks may be necessary to achieve disengagement.

22. **Breaking Contact**. The move of the delaying force into an area where another force takes over responsibility is a critical operation, especially if the force has been unable to disengage. The overall commander will specify a handover line.

23. If the delaying operation is being followed by a defence, elements from the defending force may have to be deployed. The enemy should be given as little indication as possible of the intention to disengage. The move back into the main defensive area must be planned and coordinated in detail. The withdrawing force must provide timely information on its planned withdrawal and on the battle situation to the force in the main defensive area. Liaison elements will be detached to the defensive force to identify withdrawing units as they approach and pass through.

24. **Employment of reserves.** Reserves are important for the maintenance of the cohesion and continuity of delaying operations particularly where the enemy has been able to outflank or to penetrate through gaps between delaying force elements. Their tasks may include:

a. **Blocking**. Containing the enemy in the area where insufficient forces have previously been deployed.

b. **Counter-attacks**. Normally, these will have limited objectives. It may be necessary to use reserves to counter-attack into gaps or in order to achieve disengagement of heavily committed forces.

c. **Covering Actions**. Reserves may also be used in prepared positions to cover withdrawing forces in order to enable them to continue the engagement in more favourable terrain.

25. In order to maintain flexibility over varying terrain, it will often be necessary to establish local reserves rather than relying on one concentrated reserve force. At a lower level, reserves will be minimal or simply consist of the employment of an element of the force that is not actively engaged. At higher echelons, forces may be specifically designated as reserves.

26. **Control Measures**. The following control measures may be employed in delay operations:

a. boundaries and control lines such as handover lines and phase lines,

b. fire support coordination measures,

c. air space coordination measures,

d. movement control measures such as routes and check points,

e. barrier coordination measures,

f. battle positions, blocking positions and assembly areas for reserves,

g. objectives,

h. timings,

i. liaison measures, and

j. denial measures.

SUMMARY

27. At some stage, a formation can expect to be tasked with imposing delay on the enemy in a particular area or a particular time. It is a common tactic early in hostilities to gain time, but it can also be used as a technique for deception and dictating a degree of control over enemy operations in order to manoeuvre him into a favourable situation. It is certainly a difficult operation to undertake, particularly over a wide area with limited assets available to carry it out. Every opportunity must be taken, however, to seize the initiative from the enemy and to force him to adopt a defensive posture.

CHAPTER 6

TRANSITIONAL PHASES

GENERAL

1. Chapters 3, 4 and 5 consider operations under the generic headings of offensive, defensive and delaying. These operations of war are often linked by one or more transitional phases which could also appear within the operations themselves. A transitional phase is never carried out in its own right. Its execution must lead to the active prosecution of one or other of the Operations of War. The successful and rapid execution of these phases relies on such factors as devolution of decision, collocation of headquarters, liaison and a simple plan. This will all lead to:

  a. the ability to make a transition between phases without a loss in tempo;

  b. the forces taking over the battle having the most up to date information;

  c. fluid movement;

  d. fire control so as to use all weapons to further the aim and to avoid fratricide; and

  e. quick regrouping.

2. There are five transitional phases:

  a. advance to contact,

  b. meeting engagement,

  c. link-up,

  d. withdrawal, and

  e. relief.

ADVANCE TO CONTACT

3. Purpose. In the advance to contact the commander seeks to gain or re-establish contact with the enemy under the most favourable conditions for the main force. By seeking contact in this deliberate manner, the advance to contact differs from the meeting engagement where contact is made unexpectedly.

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4. The advance to contact is always executed in preparation for a subsequent operation, such as an attack, and is terminated when the main body is positioned in accordance with the commander's plan. Subsequent operations will be determined by the mission assigned to the main force. This may also be determined from the posture of the main body when contact is made with the enemy.

5. By advancing to contact, the force seizes and maintains the initiative. The operation may involve:

  a. destroying or forcing the withdrawal of enemy elements; and

  b. seizing ground of tactical importance.

6. **Conduct.**

  a. **Planning.** The primary consideration in planning for an advance to contact is anticipating actions which may occur during the operation and the requirements for manoeuvre and fire support when contact is made. During the advance to contact, the commander will need to analyze the situation continually using current reports and intelligence from all sources. The positioning of units in the formation is dictated by the mission, particulary the anticipated employment of combat forces. Combat service support units are integrated in the movement of combat forces to provide support but without interfering with tactical movement.

b. **Procedure**.

(1) **Covering Force Action.** The advance to contact will be led by the covering force which normally contains reconnaissance forces. Whenever possible, axis should be given in the most general terms to the leading elements. Axis should be allowed to develop as the battle unfolds so that success can be exploited. Possible tasks of the covering force are:

(a) To locate and determine the strength of enemy positions.

(b) To find and exploit gaps so as to provide information on possible routes for enveloping or bypassing action by the advance guard and main body.

(c) To obtain information on routes, obstacles and terrain conditions affecting movement.

(d) To conduct deep penetration either to disrupt enemy communications and logistic units or possibly to seize a crossing site, in particular, a bridge or defile. Integral engineer support will be required to make safe and remove any demolitions on the crossing and the main force must follow up very quickly.

(e) To provide security for the advance guard and main body by conducting counter-reconnaissance.

(2) **Advance Guard and Main Body**. The tactical handling of the advance guard and the main body will depend on the number of routes available. The rate of advance will vary across the front and will depend on the terrain, the location and strength of enemy positions and the possibility of bypassing the opposition. The grouping within the main body must be sufficiently flexible to allow elements to:

(a) take over the advance guard role;

(b) change direction or route of any of the elements of the main body either to bypass enemy positions or take advantage of better routes; and

(c) deal with the enemy which has been bypassed or is holding up the main force.

(3) **Flank and Rear Guards**. The deployment of the flank and rear guards will depend on the assessment of the threat. Flank guards normally travel on routes parallel to the route of the main body, moving either continuously or by successive or alternate bounds to occupy key positions on the flanks. In some situations, flank protection may be provided by a flanking formation. Armoured reconnaissance units are suitable for flank protection of the advancing force by moving on a route parallel to the main axis or by picketing likely enemy approach routes. These reconnaissance forces are unlikely to be able to deal with a strong enemy force, but will give early warning of an enemy approach which can then be dealt with by reserves. Attack or armed helicopters are particularly effective in this instance. Mobile air defence units are particularly effective against the helicopter threat. The rear guard follows the main body.

(4) **Action on Contact.** On contact, speed of manoeuvre and initiative may overcome the enemy before he can react. The sequence of action on contact might be as follows:

(a) Within its capabilities, the covering force destroys enemy forces that can interfere with the movement of the main body and pickets or blocks those that it cannot destroy.

(b) Elements of the advance guard or of the main body may be committed to reduce pockets of resistance contained or bypassed by the covering force.

(c) Any elements of the covering force tasked with containing such pockets initially are relieved as rapidly as possible and rejoin the covering force to avoid dissipating its strength.

(d) The commander monitors the progress of the leading and engaged combat forces and anticipates their requirements. When resistance is encountered, he commits forces from the main body in order to maintain the momentum of the advance.

(5) It is of the utmost importance that the momentum of the advance be maintained. Whenever possible, enemy positions should be outflanked. The commander must lay down whether they are to be bypassed and cleared by follow-up forces, or to be taken from the rear by the leading elements. A commander may well decide that a hasty attack by troops in contact is to his advantage, while another part of the force continues the advance. In either case, if the enemy established a continuous front and the strength and width of his positions preclude an outflanking move, an attack may be mounted to force a gap.

(6) **Bypassing Policy.** The bypassing policy must be carefully thought out and clearly specified. It will always be extremely difficult to determine the exact strength of a position, and much will depend on accurate reconnaissance and intelligence.

(7) **Routes.** Once routes have been opened it may be necessary to employ forces to ensure their security, particularly if small pockets of enemy are bypassed and remain to the rear of friendly forces. Routes used for logistic traffic should be kept separate from those used by combat forces, if possible. It is also necessary to ensure that empty Combat service support vehicles, or those carrying casualties, return to the rear. These routes are especially vulnerable to enemy action and require security against land and air attack.

(8) **Airmobile Forces.** Airmobile forces, by being deployed ahead of the covering force to seize key terrain, including defiles, bridges and crossing sites and to overcome obstacles, achieve surprise and maintain momentum. The ground force can then link up with them and continue the advance without the need to undertake an operation which may slow the momentum of the advance. Airmobile forces must not be deployed too far ahead and against targets which they are unable to overcome as the force may be lost before assistance arrives and momentum will suffer.

(9) **Airborne Forces.** Airborne forces can be employed in a manner similar to airmobile forces.

(10) **Transition.** The advance to contact ends either when the intended posture is achieved or when enemy action requires the deployment and the coordinated effort of the main body.

MEETING ENGAGEMENT

7. **Purpose**. The meeting engagement is a combat action that may occur when both sides seek to fulfil their mission by offensive action. It will often occur during an advance to contact and can easily lead to a hasty attack. In offensive, defensive or delaying operations it will often mark a moment of transition in that the outcome may well decide the nature of subsequent operations. This is why a meeting engagement is described as a transitional phase. Even when the main part of a force is attacking, defending or delaying, individual elements may find themselves in situations which have the characteristics of a meeting engagement.

8. The meeting engagement differs from the advance to contact in that it occurs unexpectedly whereas in the advance to contact the commander is deliberately seeking to establish contact with the enemy.

9. A meeting engagement may occur in various circumstances:

a. when a force which is moving makes contact with an enemy about whom the friendly force has little or no information;

b. when both sides become aware of the other and decide to attack without delay in an attempt to obtain positional advantage, gain ground of tactical importance, maintain momentum or assert dominance over the enemy; and

c. when one force deploys hastily for defence while the other attempts to prevent it from doing so.

10. **Conduct**.

a. It will not be possible to plan in detail for a meeting engagement. However, a force that is properly deployed in accordance with recognized tactical principles will be poised to react to most situations. Meeting engagements will invariably force a commander to reconsider and often adjust his plans. The basic principle is to seize and retain the initiative. This will give the commander the freedom of action he needs, whether to accomplish his mission as he originally intended or to change his plan to suit the new situation. High tempo is at a premium; success depends, to a large extent, on the speed of reaction of the commander and his forces. He can then decide how to develop the meeting engagement into one of the three operations of war (offence, defence or delay).

b. While commanders can make no firm plans, they should make use of the Intelligence Preparation of the Battlefield process. In particular, they should study the terrain and the map to deduce areas which are favourable to a meeting engagement. Additionally, they should take particular note of the latest situation or intelligence reports and assessments concentrating on likely enemy capabilities, objectives, avenues of advance, going and natural obstacles.

c. Meeting engagements are such that there will not normally be enough time for a complete battle procedure to take place as the two opposing forces close. Assuming a reasonable balance of forces, victory will go to the side with the higher tempo. The commander who reacts more quickly, strikes the first blow and keeps the enemy off balance. In the planning stage, this implies careful reconnaissance, balanced grouping, forward command and responsive indirect fire support on call. Planning in this type of battle should never be so detailed as to lead a commander into a preconceived course of action, as a plan is not a substitute for initiative and bold leadership which overturn material superiority.

d. **Procedure.** The commander whose forces make contact with the enemy in a meeting engagement must immediately decide how he wants to fight the battle. In deciding on a course of action he must not lose sight of his original mission and of his superior commander's intent. On the other hand, he must not shirk his responsibility to act independently. His decision must be notified to his superior commander immediately.

e. One of the commander's first tasks in a meeting engagement is to determine the enemy's strengths and dispositions. He should particularly ascertain the situation on the enemy's flanks. The identification of and an attack on an assailable flank will generally disclose the enemy's dispositions more rapidly than a frontal attack and will give more opportunity for tactical surprise and decisive results.

f. Often, it may not immediately be possible to use all the forces that the commander might wish to deploy. In this case, he must establish an order of priority for deployment early in the operation. Throughout the operation, he must keep a clear picture of the location and status of all elements of his force.

LINK-UP

11. **Purpose.** Link-up is conducted to join two friendly forces in enemy controlled territory. It may therefore be necessary to destroy the enemy between these forces before a link-up is established. Both forces may be moving towards one another, or one may be stationary or encircled. They may have the same or differing missions. A link-up operation could occur under the following circumstances:

a. A link-up between two forces engaged in converging attacks may take place when each force captures adjacent objectives, thus completing an encirclement.

b. A link-up with encircled or cut-off forces may take place on the perimeter of the defensive position established by that force. When the link-up is combined with a break-out action, it may take place at another designated objective. The encircled force should try to break out, or at least mount some form of diversionary action in order to ease the task of the relieving force by diverting enemy attention.

c. A link-up operation with an air delivered or infiltrated force may take place on the perimeter of its defensive position. In this case, the link-up is normally followed by a passage of lines or by a relief of the forces involved.

12. **Conduct**.

a. The requirement for the link-up may be part of the concept of operations from the outset. Alternatively, a link-up may become necessary in the course of an operation and must be planned as the situation develops. In any event, details of the plans must be passed to all concerned in due time, without undermining security.

b. The mission to carry out a link-up operation should always be given in the context of a subsequent mission for the forces involved. It will normally state the location where the link-up will take place. Frequently, a time will be stipulated for the link-up.

c. When planning a link-up operation, particular attention should be paid to:

(1) the coordination of manoeuvre forces involved,

(2) command relationships,

(3) communications, and

(4) control measures.

d. **Link-up of a Moving Force with a Stationary Force**. In an operation where one force is moving to link-up with a stationary force, the following planning procedures apply:

(1) A major consideration in this type of operation is speed in establishing the link-up in order to reduce the possibility of enemy reaction and to minimize the period of vulnerability.

(2) Ground link-up points must be coordinated at locations where the axis of advance of the moving force intersects with the security elements of the stationary force.

(3) A Restrictive fire line is required to coordinate fire from the converging forces.

(4) For the moving force in a link-up, the operation may involve deliberate attacks or, if circumstances permit, the more rapid movement of an advance to contact.

(5) When the link-up is made, the moving force may join the stationary force or pass through or around and continue to attack the enemy. If they join up to continue operations, a single commander for the overall force must be designated. Subsequent operations must be launched as quickly as possible so as to exploit the success achieved by the link-up.

e. **Link-up of Two Moving Units.** Link-up between two moving forces is a difficult operation to conduct successfully and is normally undertaken to complete the encirclement of an enemy force. Primary and alternate link-up points are established on the boundaries where the two forces are expected to converge. During the last phase of the link-up operation, reconnaissance elements must seek to establish contact with the other force as early as possible and additional information will be obtained to confirm or adjust earlier plans. As they move closer to one another, the need for positive control to avoid incidents of fratricide is important and must be coordinated to ensure that the enemy does not escape between the two forces. Leading elements of each force should monitor a common radio net.

WITHDRAWAL

13. **Purpose**. A withdrawal occurs when a force disengages from an enemy force in accordance with the will of its commander. It seeks to disengage its combat forces from the enemy although contact may be maintained through other means such as indirect fire, reconnaissance or surveillance.

14. The order to withdraw will not normally be given by the commander without the agreement or direction of his superior commander. A withdrawal may be undertaken for the following reasons:

a. if the object of the operation cannot be achieved and the force is threatened by defeat;

b. the objective is achieved and there is no further requirement to maintain contact;

c. to avoid battle in unfavourable tactical conditions;

d. to draw the enemy into an unfavourable posture, for example, to extend his lines of communication;

e. to conform to the movements of adjacent friendly forces;

f. to allow for the use of the force or parts of the force elsewhere; and

g. for combat service support reasons; i.e., the force can no longer be sustained.

15. **Conduct**.

a. **Planning.** The withdrawal will take place either in or out of contact with the enemy. Whichever the case, the commander's primary concerns will be:

(1) to disengage;

(2) to retain an intact front by the deployment of strong covering troops;

(3) to safeguard withdrawal routes; and

(4) to maintain balance throughout the operation.

b. Success will depend on the maintenance of morale, tight control and secrecy. A commander must also be ready to take the offensive if the opportunity arises, albeit with only limited objectives.

c. **Mission**. The commander's mission will normally be to disengage his force. If it is a response to the deliberate intention of a higher commander, the mission will be included in a complete operations order. If, on the other hand, the decision has been forced on the commander by highly unfavourable circumstances, the order to withdraw may contain nothing more than the authority to do so and give only minimal direction.

d. **Procedure**.

(1) **Grouping and tasks**. The plan must be simple and normal organizations should be retained as far as possible. Regrouping during the operation should be avoided. Particular attention should also be paid to:

(a) surprise and deception, possibly including noise coverage by artillery;

(b) maximum use of cover and concealment to achieve protection; and

(c) allocation of routes and an appropriate movement control system

(2) **Positions.** A withdrawal will either be conducted directly to a new main position, or indirectly through one or more intermediate positions. The decision to use intermediate positions will depend on the distance, the strength of the force, the state of the enemy and the delay required to prepare the new position. In this case a rearward passage of lines will be required in order to check the enemy at the intermediate position.

(3) **Intermediate Positions**. Considerations when selecting intermediate positions are:

(a) They must be strong enough to force the enemy to deploy early and to undertake time consuming preparations for an attack. This will mean selecting positions which incorporate natural obstacles and deploying long range direct and indirect weapon systems.

(b) They should be far enough from one position to the other to force the attacker to move his artillery each time to engage.

(4) **New Position**. Early preparation of the new position is important although this will have to be balanced against the need for security. Clear priorities will also have to be laid down between work on the new position and intermediate positions especially as there is likely to be a shortage of troops available for these tasks. Whatever the situation, the commander must plan to send reconnaissance parties, and a proportion of his engineers, back to the new position before the withdrawal begins.

(5) **Timings.** The commander may control the withdrawal by imposing two key timings:

(a) The time before which there will be no rearward movement except for normal traffic and reconnaissance parties.

(b) The time up to which the position has to be denied to the enemy. This is the main coordinating timing of the withdrawal plan.

(c) The time at which troops may start thinning out.

(d) The time by which all troops will be clear of a line behind the position.

(6) **Sequence of Withdrawal.** Based on the above timings the sequence for the withdrawal from a position may be:

(a) Reconnaissance parties move back and all nonessential vehicles and equipment are cleared from the position.

(b) Covering troops take up station behind the position and reserves move to the appropriate locations.

(c) Troops on the position withdraw through the covering troops. By night, where surprise is easier to achieve and a commander considers a disengagement possible, rear elements should pull out first leaving those forces deployed forward until later. Where disengagement is not possible, forward troops will move first covered by those in depth.

(d) As soon as the main body has disengaged and is at a safe distance, the protective elements start their disengagement, although they could remain in their original position until the enemy attacks in force, so as to achieve the maximum deception and delay. If the enemy launches a strong attack, they will continue their protective task with a delaying operation. If the distance to be moved is great and the enemy is expected to react quickly, a portion of the protective force may occupy a number of intermediate defensive positions in the rear of the position being abandoned before the withdrawal of the main body.

(e) If the protective element is not able to disengage or to prevent the enemy from closing in on the main body, it must either be reinforced by elements from the main body, or the overall commander must commit the majority, or all, of this force. In this event, the withdrawal must be resumed at the earliest possible time. If the protective element has disengaged, it will follow the main body and continue to provide security. In this case, it will maintain surveillance of the enemy until ordered to disengage or until this task is taken over by another force.

(f) This sequence is repeated at each intermediate position. The withdrawal is terminated when a force is ready to assume its next task.

RELIEF

16. **Purpose**. When combat activities are taken over by one force from another, this is referred to as the conduct of relief operations. Relief operations are undertaken when forces:

a. are unable to continue with their mission;

b. are required for operations in another area;

c. have accomplished their mission;

d. are due for rotation to avoid exhaustion; and

e. are not suitable to accomplish the new task.

17. Relief is normally undertaken in order to sustain the overall level of combat power. Inherent, is the transfer of operational responsibility for a combat mission. The requirement is that this transfer should take place while maintaining the required level of operational capability. Commanders normally co-locate to effect the handover.

18. The mission will be determined by the commander's intentions, the type of operation the force has been engaged in, the type of enemy force involved and his anticipated course of action.

19. During any relief, there is a period when congestion increases the vulnerability of the forces involved. The possibility of confusion is inherent as two parallel command systems will be operating in one area at the same time. The complexity should not be underestimated, but by contrast, the beneficial and possibly decisive effects to be gained from successful synchronisation of the combat power of both forces should not be forgotten. The types of relief are defined as:

a. **Relief in Place**. A relief in which all or part of a force is replaced in a sector by an incoming unit.

b. **Forward Passage of Lines**. A relief in which a force advances or attacks through another which is in contact with the enemy.

c. **Rearward Passage of Lines**. A relief where a force effecting a movement to the rear passes through the sector of a unit occupying a defensive position.

d. **Retirement.** A retirement is different from a withdrawal in that it is a movement away from the enemy by a force out of contact.

20. **Interoperability**. It is quite possible that a relief operation will involve forces of differing nationalities. In this instance, the following additional points should be considered:

a. dissimilar unit organizations may require special adjustments in some areas, particularly during a relief in place;

b. control of fire support may require special liaison;

c. language difficulties may require the increased use of guides; and

d. special communications arrangements may be required.

21. **Relief in Place.**

a. Purpose. Relief in place is normally conducted in defensive operations and might occur in the following circumstances:

(1) when the existing force is depleted or exhausted and needs to be replaced;

(2) when troops of one capability or role need to be replaced by troops of a different role; and

(3) for routine rotation of troops.

b. The incoming force normally assumes the mission of the relieved force, usually within the same boundaries and, at least initially, with a similar disposition, assuming the types of formation are the same. The transfer should take place without a loss in operational capability.

c. **Conduct.**

(1) **Planning**. Once begun, all relief operations take place as quickly as possible. Where possible, the operations should take place at night or during periods of reduced visibility. Detailed planning and preparation for a relief in place is preferable if the operation is to be conducted successfully. A thorough reconnaissance should be conducted by the incoming force if time permits. If time is limited, relief is planned and executed from oral or fragmentary orders. The liaison personnel are left by the outgoing formation to assist with the coordination. Personnel from combat,

combat support and combat service support units remain with the incoming force until barrier, fire support, counter-attack and combat service support plans are coordinated.

(2) **Timings**. The detailed timing of the operation will be made within the guidelines set by the superior commander commencing with a timely warning order. Ideally, sufficient time must be allowed, at all levels, for a detailed handover of essential information including:

(a) current tactical situation and intelligence assessment,

(b) current operation orders and plans, including the deception plan,

(c) organization of the area and location of facilities and routes,

(d) combat service support plan,

(e) sequence of relief,

(f) location of other units which will not be replaced,

(g) timings, particularly the time of transfer of command, and

(h) details of the intelligence collection plan and location of sources where appropriate.

d. **Procedure**.

(1) **Execution.** After the planning is completed, execution at divisional level can be decentralized. The relief than consists of a series of relief operations conducted by formations and monitored by respective superior headquarters. Once the relief has started commanders and staffs are concerned with:

(a) timings and movement of brigades,

(b) coordination of transportation resources,

(c) movement control,

(d) current operations,

(e) a constant surveillance and intelligence collection capability,

(f) a coordinated air defence plan involving air, aviation, Air defence and all arms air defence resources, and

(g) the availability and notice to move of reserves.

(2) **Allocation of Routes.** Careful route planning and movement control are essential to avoid congestion. The movement control plan must be simple in concept but in sufficient detail to ensure that it meets the aim. Marches in opposite directions will be conducted on separate roads and tracks if possible, and lateral movements will be avoided. Where possible, incoming and outgoing formations and units should make shared use of transport allocated for the operation.

(3) Defence Plan Review. The assumption of responsibility for an existing defensive position and barrier may force the new commander to fight the previous commanders plan, unless significant adjustments are made. A full review of the barrier plan should be conducted to ensure that the new commander's intent may be met.

22. **Forward Passage of Lines.**

a. Purpose. The force in contact remains in place and must provide the advancing force with as much assistance as possible including tactical and logistical support. A forward passage of lines will be used when:

(1) an attack is to be continued with fresh or more suitable forces; or

(2) the advancing force has to take possession of suitable terrain in order to continue the battle.

b. **Conduct**.

(1) **Planning**. The planning procedures for a forward passage of lines are similar to those for a relief in place. The plans for the force making the passage forward take priority. On receipt of a warning order, the incoming commander and his staff establish liaison with the force in contact. The incoming formation will normally collocate its tactical or main headquarter with the tactical or main headquarter of the force in contact. All levels of command exchange liaison personnel.

(2) **Responsibilities**. Responsibilities for the various planning requirements will be split between the different headquarters involved in the operation. They are detailed below although the list is not exhaustive and any given operation may require a different split of responsibilities.

(a) **Controlling Headquarters.**

i. Overall plan including timings, control lines, routes and rendez-vous points.

ii. Arrangements for liaison, reconnaissance and advance parties.

iii. Fire support coordination.

iv. Deception plans, including emission control and electronic warfare, and restriction on forward reconnaissance.

v. Tactical air support of operations.

vi. Movement.

vii. Airspace control measures and coordination of air defence.

viii. Combat service support including criteria for handover of equipment, combat supplies and medical support.

(b) **Force in Contact.**

i. Intelligence, including enemy dispositions and topographical information.

ii. Coordination of reconnaissance.

iii. Liaison.

iv. Security of the line of departure.

v. Selection, security and maintenance of routes.

vi. Allocation of terrain for the incoming force.

vii. Movement control within boundaries.

viii. Provision of air defence cover, essentially up to the line of departure and desirably, forward of it.

ix. Guides.

x. Fire support until the pre-H hour fireplan starts. Thereafter the provision of fire support while still in range.

xi. Forward replenishment, especially fuel, after the move forward.

(c) **Force Moving Forward.**

i. Provision of a headquarters, to be co-located with the headquarters of the force in contact. There should be representatives from the staff and artillery and engineer advisors.

ii. Timings for the move forward and control of movement.

iii. Agreement with the existing force over provision of terrain, especially for gun areas, concentration/assembly areas and attack positions.

iv. Liaison officers to subordinate headquarters or units of the in-place force.

v. Assistance with movement control.

c. **Timings**. The detailed timings of the operation will be made within the guidelines set by the superior commander commencing with a timely warning order. Time must be allowed for:

(1) planning, initially at force level and then at subordinate levels,

(2) movement and co-location of command elements,

(3) movement of reconnaissance, advance and combat support elements,

(4) battle procedure, and

(5) movement of the main body.

d. **Procedure.**

(1) **General.**

(a) The moving force will take advantage of the security provided by the in-place force to deploy for the attack.

(b) The entire movement from the rear through the in-place force should be completed as a single fluid movement in order to avoid congestion.

(c) The indirect fire support elements of the attacking force may be deployed in the in-place force's area prior to the arrival of the manoeuvre force.

e. **Grouping**. Whenever possible, regrouping should be carried out before the move forward. Regrouping in a forward assembly area should be avoided. The relieving force will be organized so that the mission can be carried out/continued after the passage of lines.

f. **Order of March.** The order of march will generally be reconnaissance elements, followed by combat support units which may have to move early in order to support the move of the combat units, followed by combat units.

g. **Forward Assembly Area**. A forward assembly area may be necessary for the replenishment of vehicles, rest for crews and any final orders on regrouping.

23. Rearward Passage of Lines

a. Purpose. The rearward passage of lines is an operation in which one force passes through the defensive position of another. Although there might appear to be little difference between this operation and a withdrawal, the distinction is that in a rearward passage of lines, a force passes through another whereas in a withdrawal, this does not happen.

Passage of lines, may take place either in or out of contact and its difficulties should not be underestimated. A rearward passage of lines may be conducted:

(1) as part of a delaying operation;

(2) as a means of changing the type of force facing the enemy;

(3) when terrain can be abandoned;

(4) as a means of relieving a force unable to continue with its mission; and

(5) as part of a withdrawal operation.

b. **Conduct**

(1) **Planning**. The planning procedures of forward and rearward passage of lines are similar although movement to the rear is likely to be more difficult because:

(a) the desire for speed and lack of troops will make detailed liaison, reconnaissance and recognition of friendly troops difficult;

(b) if the moving force has been in action, its soldiers will be tired and possibly disorganized; and

(c) the enemy may be pressing hard.

c. **Responsibilities**. The planning responsibilities of the various headquarters are:

(1) **Controlling Headquarters.** The orders for the passage of lines issued by the controlling headquarters will determine, as a rule:

(a) the location of the receiving position;

(b) task organization and mission of the in-place forces;

(c) the time by which the force's defences are to be ready;

(d) **control lines** (including the handover line), areas at which the moving will assemble or deploy and the allocation of sufficient routes for the moving force;

(e) the responsibility for the closure and activation of barriers;

(f) the passage of command for the conduct of operations and new command relationships;

(g) communications, identification and recognition signals; and

(h) the subsequent employment of the moving force.

(2) **Moving Forces and In-place Forces.**

(a) Plans must be coordinated for fire in support of the moving force. If necessary the force in-place must occupy gun positions forward of their main position in order to give maximum coverage. In any event, the in-place force will provide fire support for the moving force.

(b) The in-place force must physically show all obstacles, and the routes and gaps through them, to the moving force. They must also be prepared to provide guides and movement control.

(c) Control of movement to the rear of the handover line is the responsibility of the in-place force. The number of routes back should be considered against the requirements for dispersion and the need to close routes to improve the barrier's effectiveness.

(d) The moving force requires information about routes, obstacles and fire support, whereas the in-place force requires information on the enemy.

(e) Planning must include mutually agreed recognition measures for day and night. That must include passwords, visual and audio signals, and the exchange of liaison personnel.

(f) There should be checkpoints for the moving force to enable tight movement control to be exercised and to inform commanders of when the passage of lines is complete. If possible there should be no pause by the moving force in the forward areas in order to avoid congestion.

d. **Procedure**.

(1) The moving force must be prepared to disengage from the enemy, and move through the in-place force to a new concentration or deployment. Movement should be at night or in conditions of poor visibility if at all possible. The first elements to move will normally be combat service support units which must clear the forward area at an early stage. Vulnerability to enemy attack is reduced by selecting areas or points of passage that permit the moving formation to pass around the flanks of the formation in position and by designating release points well to the rear of these positions. The moving formation must have priority on an adequate number of roads and facilities to ensure its rapid movement through the defended area.

(2) The in-place force must be deployed so that it can carry out its task when it assumes responsibility for the continuation of the mission. It must ensure that its elements in location to cover the handover line are of sufficient strength to conduct a temporary defence and to hold open crossing sites, passages and other defiles until the rearward passage of lines is complete. It may, however, be necessary for elements of the moving force to be placed under operational control of the in-place force to deal with a critical situation caused by enemy action. Additionally it must facilitate the disengagement of the moving force by providing routes, guides and traffic control.

(3) The commander of the moving force is responsible for identifying the last of his forces as it passes through the in-place force and for reporting his force clear to his formation's commander and to the in-place force's formation commander.

e. **Conclusion**. A rearward passage of lines is difficult to execute well. If the forces are not well balanced and well supported, an alert enemy may be able to outflank or overrun formations and units or severely disrupt operations by the use of nuclear or chemical means. Careful planning and reconnaissance and clear directives and orders will be necessary to ensure that the operation proceeds smoothly. Command and control measures must be of the highest order if confusion and casualties are to be minimized. Early liaison by those in authority is crucial. The plan for the changeover of command must be clear and known to both formations.

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CHAPTER 7

UNIQUE OPERATIONS

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GENERAL

1. The ability to move forces about the battlefield in a rapid and flexible manner is an important factor in a commander's development of his plan. Both fixed and rotary wing aircraft have a major role to play in the deployment of forces. Similarly, the deployment of forces from the sea offers a commander the ability to maximize mobility, flexibility and surprise in the concentration of force. The nature of airmobile, airborne and amphibious operations is such that they will often become the focus of attention for the commander and his staff even if they do not constitute the main effort. It is important, therefore, that they distinguish between the requirement for close coordination, and the need to keep such operations in perspective in relation to the main effort and other activities. Similarly, airmobile, airborne and amphibious operations will often attract undue attention from the enemy who may find himself distracted away from the friendly force's main effort by such actions. This chapter examines briefly the employment considerations for the use of airmobile, airborne and amphibious forces. As such, it is not intended for detailed use by such forces in the planning and conduct of operations, but rather as a planning guide to the formation commander and his staff.

AIRMOBILE OPERATIONS

2. **Introduction**. An Airmobile operation is: "An operation in which combat forces and their equipment manoeuvre about the battlefield by aircraft, to engage in ground combat" (AAP-6). The movement of the force is normally done using helicopters, under the control of a land force commander. It should not be confused with air movement, which is the air transportation of troops, supplies and equipment, which do not necessarily have either tactical integrity or the ability to engage in immediate combat.

3. Airmobile forces may be employed independently or in conjunction with other land forces. They permit a commander to react quickly to a threat over his whole area of responsibility. The threat they pose may cause the enemy to have to protect important installations and key terrain in his rear areas, which would be difficult to attack by land movement alone.

4. **Threat.** In addition to the normal threat faced by land forces, airmobile forces may expect a threat from enemy air defences, both from the ground and from the air. There is also a threat from electronic warfare, particularly jamming. Usually, airmobile operations are executed in undefended or lightly defended areas. Operations in enemy controlled areas may be very difficult and, in some cases, impossible, against a well prepared enemy with sophisticated air defence systems.

5. **Organization.** Airmobile forces may be organized as follows:

a. A formation which has organic aircrafts in a sufficient quantity to enable it to undertake airmobile operations without requiring the assistance of additional aviation forces. This is an airmobile formation.

b. A formation which has insufficient organic aviation assets and thus requires reinforcement. Some joint training may be required with these newly allotted aviation forces to make the formation truly airmobile.

c. A formation which has no organic aviation forces and which must have the necessary forces allotted to it before it can undertake airmobile operations. A major consideration in this case is the requirement for joint training before the commitment of the force.

6. **Capabilities.** An airmobile force is capable of:

a. attacking from any direction, striking objectives in otherwise inaccessible areas, overflying barriers, and bypassing enemy positions, to achieve surprise;

b. rapidly deploying and redeploying, permitting quick concentration of combat power at key locations. Similarly, they are capable of rapid dispersal to reduce vulnerability;

c. giving the commander the ability to reinforce or relieve his forces quickly and over long distances;

d. enabling the force commander, under certain circumstances, to commit a larger part of his force while relying on a small airmobile reserve; and

e. conducting operations independent of a ground line of communication.

7. **Tasks**. The purpose of airmobile operations may be:

a. to seize and retain key terrain, including defiles, bridges and crossing sites;

b. to overcome obstacles;

c. to conduct raids;

d. to engage or destroy air delivered enemy forces and guerrilla forces;

e. to exploit the effects of nuclear weapons;

f. to conduct reconnaissance missions;

g. to conduct security missions, such as providing a screen on possible enemy approaches or as a rear area security force;

h. to support deception operations;

i. to block or to assist in the containment of enemy penetrations;

j. to reinforce encircled forces; and

k. to insert or extract long-range patrols.

8. **Limitations.** Airmobile operations may be limited by the following factors:

a. weather conditions;

b. vulnerability to enemy fire and the effects of nuclear, biological and chemical weapons, particularly between assembly and take-off and after landing;

c. vulnerability during air movement to enemy air defence, including aircraft;

d. local air superiority in the objective area;

e. inadequate suppression of enemy ground fire and air defence weapons, including the related command and control systems along the flight route;

f. type and quantity of supporting weapons and other heavy equipment, including vehicles, that can be airlifted; and

g. difficulty in maintaining flow of supply, including the need for early link-up by ground forces or safe air resupply.

9. **Planning sequence**. An airmobile operation is planned in the reverse order of execution. The reverse planning sequence consists of:

a. **The Ground Tactical Plan**. The ground tactical plan covers the employment of the assault force and support units once they have landed.

b. **The Landing Plan**. The landing plan covers the introduction of the airmobile force into the objective area at the right time and place and in the proper sequence to execute the ground tactical plan.

c. **The Air Movement Plan.** The air movement plan consists of the flight route and the air movement table. It also includes information concerning the flight formation, altitudes and speeds, weather, fuel, maximum load capacity, radius of action and procedures for airspace control, air defence and tactical air support.

d. **The Loading Plan.** The loading plan identifies the pick-up zone, provides guidance for its establishment and control, specifies the priority of landing and states the order of movement of troops, supplies and equipment to the pick-up zone which is used as a base for troop briefing.

e. **The Staging Plan**. The staging plan details the control area(s) and provides guidance on the repositioning of the units, supplies, and equipment required.

10. **Conclusion**. Airmobile forces can be moved rapidly over long distances and can therefore be used as a very flexible reserve or manoeuvre force in their own right. The types and numbers of available helicopters will determine the tasks which they can undertake. Indirect fire support will be required from any artillery within range and combat service support for periods longer than 48 hours must be supplied by the host formation. Airmobile operations require rapid joint planning by the ground and air forces involved together with comprehensive and well understood operating procedures.

AIRBORNE OPERATIONS

11. **Introduction**. An Airborne operation is: "An operation involving the movement of combat forces and their logistic support into an objective area by air" (AAP-6). Airborne forces are specifically organized, equipped and trained for delivery by airdrop or air-landing or a combination of both, into an area, to carry out operations which are only feasible under conditions of local air superiority. For the purposes of this manual, the term "airborne" refers to parachute or (fixed wing) air transported delivery as opposed to tactical (heliborne) mobility. The success of such operations is dependent on strict security in order to achieve surprise. Airborne forces give a commander flexibility by virtue of their reach and responsiveness and they permit him to operate throughout his area of operations. They may be initiated either independently, or in conjunction with the forces operating on the ground. The nature of their role is such that they are lightly equipped with only limited means of fire support and mobility once on the ground. Their capability to sustain operations after the initial assault is therefore governed by the ability either to resupply, probably by air, or to link up with them on the ground. If this is not possible, they will need to be extracted.

12. **Capabilities**. Airborne forces have the following capabilities:

a. By moving to an objective by air, they may be deployed quickly and over considerable distances, crossing obstacles and difficult terrain in the process. They can be a tool of deep operations, potentially capable of striking at an enemy's centre of gravity.

b. They have the ability to achieve surprise, particularly as their area of operations cannot be easily predicted by the enemy. Even when launched, the mission of the force may not be immediately apparent to the enemy.

c. Along with amphibious forces, they are capable of theatre entry assault, having been launched out of theatre from the home base or from an interim forward mounting base.

d. They can operate as conventional infantry forces and are particularly well suited to doing so in favourable terrain.

e. By their very nature, airborne forces can have a psychological effect on the enemy and on the mind of the enemy commander, far outweighing their actual capability. Possession of such a capability may force an opponent to concentrate far more on his own rear operations than he might otherwise wish to do.

13. **Types of Operation**. Airborne forces can be employed to carry out a number of types of operation:

a. **Seize and Hold Operations.** Airborne forces may be required to seize and hold objectives until either reinforced or relieved by other forces.

b. **Air Interdiction Operations**. Air interdiction operations are intended to prevent or hinder enemy operations in a specific area. Terrain which hinders the enemy's off-road mobility, i.e., featuring wooded areas, hills, rivers or other obstacles, is best suited to this type of operation.

c. **Airborne Raids**. The airborne raid is a tactical, operational or strategic level operation, normally of short duration, which is characterized by its boldness of concept and execution. Raids may be conducted to destroy enemy installations or positions, to capture enemy personnel, or to harass or disrupt enemy operations. Because of difficulties of control and combat service support, such operations are usually limited in size.

14. **Tasks**. When carrying out any of these operations, airborne forces may be given the following tasks:

a. the seizure and retention of key terrain until link-up with ground forces;

b. the capture of airfields and beaches to form airheads and bridgeheads;

c. the collection of information in enemy controlled territory;

d. the conduct of raids on headquarters, fire support positions, lines of communication, administrative and combat service support installations. This will serve to create a sense of insecurity in the enemy's rear areas;

e. the reinforcement of encircled forces;

f. the conduct of an attack on the rear of enemy positions or cut off of his reserves in combination with offensive action by other ground forces;

g. the coverage of a flank or possible enemy approach route; and

h. as a reserve to counter enemy deep operations in friendly rear areas.

15. **Limitations**. Airborne operations will be subject to a number of limitations:

a. Transport aircraft are vulnerable to enemy fire, both en route to the objective and in the landing/drop zone itself. They may be further restricted by poor weather conditions. Local air superiority will be essential and enemy ground based air defences will need to be neutralized or suppressed.

b. After landing, airborne forces have limited mobility, organic fire support and combat support and they may require time to organize and reach full combat effectiveness.

c. Reinforcement, redeployment or extraction may be considerably more difficult than with other ground forces.

d. Air resupply may be subject to disruption. There are particular difficulties in maintaining logistic balance on a cross-FLOT operation. It is difficult to sustain a force via an air bridge, particularly with respect to bulk fuel and ammunition.

16. **Planning Sequence**. Planning for an airborne operation is best carried out in the reverse order of execution:

a. **The Ground Tactical Plan**. The ground tactical plan details missions and objectives and sets out the type, strength and organization of combat forces and support required to accomplish the assigned mission. For most operations it also designates the area of operations, other reconnaissance and security forces, boundaries, and provides for a reserve.

b. **The Landing Plan.** The landing plan, in conjunction with the ground tactical plan, indicates the sequence, the method of delivery, locations of drop/landing zones and the assembling of the different components of the airborne force and materiel in the objective area.

c. **The Air Movement Plan.** The air movement plan, in conjunction with the landing plan, includes detailed information concerning the air movement of all airborne forces from the departure airfields to the drop/landing zones.

d. **The Loading Plan**. The loading plan is based on the likely requirements in the landing plan and establishes the priority of loading.

e. **The Staging Plan**. The staging plan is based on the requirements of the air movement plan. It deals with the problems of dispersion of the airborne forces in the area of the departure airfields and also covers the briefing and preparation of the units for the forthcoming operation.

17. **Execution.** An airborne operation generally falls into four inter-related stages:

a. **Mounting**. This includes all activities from receipt of the warning order until loaded aircraft take off on the operation. During this stage, joint planning is completed, intelligence is analyzed, stringent security measures are maintained, troops, equipment and supplies are assembled and marshalled, and aircrafts are loaded.

b. **Air Movement.** This stage begins with the take-off of loaded aircraft and ends with delivery of the force to the drop zone or landing zone.

c. **Assault**. The assault stage covers the assault landing of the force on the drop zone/landing zone, assembly, securing the objective and reorganization.

d. **Subsequent Operations.** By the very nature of airborne operations, the initiative is seized. The force should seek to maintain this advantage while operating in enemy territory although any subsequent operations must be in accordance with the commander's overall plan.

AMPHIBIOUS OPERATIONS

18. **Introduction**. An Amphibious operation is: "An operation launched from the sea by naval and landing forces against a hostile or potentially hostile shore" (AAP-6). Amphibious forces constitutes a major force multiplier as the enemy must commit a significantly greater number of forces to secure coastlines and all other possible entry points. Once committed, however, this force multiplier capability is much reduced.

19. Mobility, flexibility and current intelligence are fundamental requirements of amphibious operations which exploit the element of surprise and capitalize upon enemy weaknesses. This is achieved through the application of the required type and degree of force at the most advantageous locations at the most opportune times. This may require the amphibious force to pause for an unspecified time before landings take place, and immediately before and during landings, it may need to switch direction rapidly in order to achieve surprise, mask its real objective or simply capitalize on its tactical mobility.

20. Amphibious operations may be used as an enabling process to seize an entry point for the landing of heavier follow-on forces, in support of other land operations, in support of wider maritime operations, or as an independent operation. The landings and subsequent operations can be supported by the ships of the amphibious task force without the use of fixed installations such as ports and airfields. It can also be sustained by its shipping and integral combat service support organization until such time as it transfers to a land command, and draws its support from there.

21. **Capabilities**. Amphibious forces are capable of carrying out four principal types of operation:

a. **Amphibious Assault.** This is the principal type of amphibious operation and involves establishing a force on a hostile or potentially hostile shore. The requirement to be able to create a rapid build-up of combat power ashore accounts for the organizational and technical differences between amphibious and land warfare.

b. **Amphibious Raid**. The raid is a landing from the sea, onto a hostile shore, involving a swift incursion into, or temporary occupation of, an objective followed by a planned withdrawal. Raids might be conducted to:

(1) inflict loss or damage;

(2) obtain information;

(3) create a diversion; and

(4) capture or evacuate individuals or equipment.

c. **Amphibious Withdrawal**. This is the withdrawal of forces by sea in naval ships or crafts from a hostile or potentially hostile shore.

d. **Amphibious Demonstration**. A demonstration is an operation conducted to deceive the enemy in order to make him take up positions which will put him at a disadvantage.

22. **Planning Sequence.** An amphibious operation will normally follow the following sequence:

a. **Planning.** The planning stage covers the period from the issue of the initiating directive to embarkation. Although planning continues throughout the subsequent stages, it is necessary to identify command relationships at this stage because there are significant changes in command relationships in the other stages.

b. **Embarkation**. The embarkation stage is the period during which the forces embark and are allocated to ships with their equipment and supplies.

c. **Rehearsal.** The rehearsal stage is the period when plans are rehearsed for the purpose of:

(1) testing the adequacy of the plan, the timing and the combat readiness of participating forces;

(2) ensuring that all echelons are familiar with plans; and

(3) testing communications.

d. **Movement.** The movement stage is the period during which the amphibious force moves to the area of operations. This move may be via staging and/or rendez-vous areas.

e. **Assault.** The assault phase is the period between the arrival of the major assault forces of the amphibious force in the area of operations and the accomplishment of their mission.

23. **Termination**. The termination of the amphibious operation is predicated on the accomplishment of the mission of the amphibious task force. This is usually once the force is firmly established ashore. The landing force may then become involved in subsequent land operations. The landing force is regarded as being firmly established ashore when, in the opinion of the the land component commander:

a. the beachhead is secure;

b. sufficient combat and supporting forces have been established ashore to ensure the continuous landing of troops and materiel required for subsequent operations;

c. command, communications and supporting arms coordination facilities have been established ashore; and

d. the land component commander has stated that he is ready to assume the responsibility for subsequent operations.

24. **Conclusion**. Amphibious operations require joint planning and execution. Amphibious forces can be moved long distances and with all necessary ground support. Movement by sea is slow when compared to movement by air, but the amphibious force can be transported together, and arrives as a formed unit capable of either conducting combined arms operations immediately, or poising to bolster political intent whilst awaiting the decision to carry out the operation. This is in contrast to strategic airlift which does not provide this utility, takes time to build up forces, and still requires a sea tail for heavier elements.

OPERATIONS BY ENCIRCLED FORCES

25. **General.** A force may be encircled by the enemy during either offensive or defensive operations. This situation restricts the freedom of action of the commander of the encircled force and that of his superior commander.

26. The major characteristics which distinguish encircled forces are that attacks may come from any direction. Also, support from outside is difficult, if not impossible. Because its location is known to the enemy, an encircled force is particularly vulnerable to nuclear and chemical attack, as well as conventional attack by artillery and aircraft. The prime concern of commanders is the

preservation of combat effectiveness, particularly the maintenance of morale. This type of combat places particularly heavy demands on both commanders and troops, and calls for a high standard of leadership.

27. Once a force is encircled, the immediate responsibility of the superior commander is to decide if its mission should be changed. His decision is based on an estimate of how long the force can fight on its own, the importance of its mission and the resources he has available to assist it. He must decide if the encircled force should defend or break out. He must also decide if it should do so alone or with additional support, particularly fire support. A break-out operation may be done in combination with a supporting attack and/or a link-up.

28. **Defence**. As soon as a force is encircled, a commander and his superior must take action, including: establishing communications and a command structure, organizing defensive sectors and fire support, constituting a reserve, and reorganizing and consolidating combat service support. In the absence of direction from the superior commander, the senior officer present takes command of the force and establishes a command structure. If the superior commander does not provide additional resources or, if there are no communications between the two commanders, the commander of the encircled force organizes the defence using his own resources.

29. **Planning**. A commander selects a defence area based on the terrain, the troops available and the original or revised mission. He plans his defence so that: surveillance is established to cover the entire perimeter, reconnaissance provides information on enemy activity, forces are assigned to cover likely enemy approaches, a relatively strong mobile reserve is available to reinforce threatened sectors, and fire support from inside and outside the perimeter is organized. The following matters require specific attention:

a. **Fire Support.** There must be a single artillery commander responsible for fire support. Firing positions for elements within the perimeter are selected to enable fire to all parts of the perimeter. Fire support from outside the encirclement is coordinated with that from within. A superior commander may have to deploy some fire support elements further forward than is normal. Often close air support and tactical aviation are the only means by which he can provide fire support. To do this, he may have to deploy additional forward air controllers to the encircled force.

b. **Air Defence.** The limited manoeuvre space of encircled forces makes them particularly vulnerable to air attack and, consequently, they are unusually reliant on air defence. Reserves should be given high priority for coverage. A superior commander may be able to compensate for deficiencies in air defence capabilities by arranging for air support and by providing the encircled forces with additional air defence elements.

c. **Engineer Support**. The normal tasks for engineers apply, but with particular emphasis on counter-mobility and protective digging. A greater proportion of engineers may have to be earmarked to deal with unforeseen threats.

d. **Conduct**. A commander must react immediately with defensive fire and reserves to block and contain any significant penetration. It may be difficult to identify the enemy's main effort, but any serious threat to the cohesion of the defence must be blocked to prevent the piecemeal destruction of the force. A commander may have to shrink his perimeter progressively to prolong his defence.

30. **Break-out Operations**

a. **General**. A break-out occurs when an encircled force creates an opening in enemy lines and extricates itself to join with friendly forces. In this operation, it is essential to maintain momentum while retaining the integrity of the force. Normally a break-out is ordered by the superior commander. If no communications exist between the superior commander and the commander of the encircled force, the latter makes his decision to break out based on his superior's intent. The break-out force is organized to provide: an assault element to create and maintain the opening; a security element to provide protection and deception on the perimeter; and security elements to cover the front, flanks and rear of the main body while it is moving. If it is impossible for the force to fight its way out, break-out by stealth is the only remaining option. Usually in this situation the force is organized into small elements which move on separate routes to join with friendly forces.

b. **Planning.** The responsibility for planning a break-out rests with the commander of the encircled force. Any activities by outside forces in support of the break-out must be in response to his plan. Planning is similar to that for a deliberate attack. A commander must plan the activities of regrouping, deception, assault and subsequent movement to join friendly forces. The main body must move protected by advance and flank guards or screens, and a rearguard. The security elements on the perimeter disengage last and may be tasked as the rearguard in the final stage. The following matters require particular attention:

(1) **Point of Break-out.** The point of break-out must be selected in relation to the enemy's disposition, routes for subsequent movement and next mission of the force.

(2) **Break-out Routes.** The most direct routes may not be the best. Enemy weaknesses must be exploited and attempts made to avoid him by the use of less direct routes, difficult terrain and periods of reduced visibility. Advance and flank guards or screens provide information on enemy locations. The number of routes used depends on the terrain, location of the enemy, size and composition of the force, and fire support available. The number of routes available to an armoured force is likely less than those for a non-armoured force. Use of a single route simplifies command and control and provides depth for any subsequent attack, thereby maintaining momentum. On the other hand, if the lead elements are stopped, there is a danger of the following elements concentrating and presenting a lucrative target or being attacked from a flank. Although the use of more than one route may complicate command and control, it offers protection through dispersion and greater flexibility. If there are lateral routes, units can be shifted from blocked routes to maintain momentum. Normally it is preferable to have at least one alternate route.

(3) **Fire Support.** There are times when organic fire support is limited due to movement, particularly just after the opening is established and the main body starts moving. This may be compensated for by providing fire support, including close air support and tactical aviation fire support from outside the encircled force.

(4) **Engineer Support.** This is required to breach enemy obstacles and to clear or breach lanes in friendly obstacles. Some engineer resources should be in the rear guard to carry out counter-mobility tasks. They can also assist in the denial of equipment and supplies.

(5) **Aviation Support.** Helicopters may be used to position forces on key terrain along break-out routes.

(6) **Combat Service Support Elements**. Combat service support elements are grouped with combat and combat support elements within the main body.

c. **Conduct**. A break-out is conducted as a deliberate attack, followed by movement, with the overall objectives of avoiding the enemy and joining friendly forces. A break-out by stealth is conducted similarly to an infiltration.

CHAPTER 8
OPERATIONS IN SPECIFIC ENVIRONMENTS

NUCLEAR, BIOLOGICAL AND CHEMICAL DEFENCE

INTRODUCTION

1. Although the cold war threat to NATO from sudden and massive attack by nuclear, biological and chemical weapons has receded, and despite the efforts in the field of arms control, there are countries which have, or may acquire nuclear, biological and chemical weapons. Accordingly, operations must be planned and conducted against a background of the risk of the employment of weapons of mass destruction against our forces. Additionally, across the whole spectrum of conflict, there may be a risk of release of harmful substances from damaged industrial plant or reactors as a result of accidental or unlawful action. Our forces must, therefore, be able to defend against conventional attacks and must also be able to conduct sustained operation over protracted periods of nuclear, biological and chemical environments resulting from the use of weapons of mass destruction or from the release of toxic industrial hazards resulting from any source other than the use of weapons of mass destruction. This will require commanders to assess the threat and take effective nuclear, biological and chemical defence measures to meet it. Nuclear, biological and chemical weapons and toxic industrial hazards and their effects, and the defence needed to minimize the effects, are different and each should be considered separately.

THE POTENTIAL NUCLEAR, BIOLOGICAL AND CHEMICAL ENVIRONMENT

2. **Nuclear, biological and chemical hazards**. A potential enemy with a nuclear, biological and chemical capability may introduce weapons of mass destruction anywhere within the spectrum of conflict and at any stage when it is to his perceived advantage and at all levels of conflict there is a risk of release of harmful substances from damaged industrial plant or reactors as a result of an accident, unlawful action or contamination from earlier use of nuclear, biological and chemical weapons between opponents.

3. Impact of nuclear, biological and chemical attacks and toxic industrial releases.

   a. **Nuclear**. Nuclear weapon attacks will cause many casualties, considerable materiel damage, obstacles to movement, and restrictions on the use of critical facilities, communications, and terrain.

   b. **Biological and Chemical**. The effects of biological and chemical agents and toxic industrial material, including medical material may vary from temporary incapacitation to death, either immediately or after a delay, among partially protected and exposed personnel. The immediate threat or the occurrence of these attacks or the requirement to operate in a contaminated environment will require individual protection. This will inevitably result in heat build up, psychological stress, reduced mobility, and degradation of vision, touch, hearing, and speech. Individual and unit operational efficiency will be degraded.

   c. **Nuclear, Biological and Chemical Contamination.** Nuclear, biological and chemical contamination, including that resulting from toxic industrial hazards may require extensive nuclear, biological and chemical reconnaissance and monitoring measures. The introduction of nuclear, biological and chemical casualties and contaminated conventional casualties in addition to other conventional casualties will place a serious strain on the medical support system at all echelons. The sum of these effects will have a significant psychological impact upon the combat effectiveness of the individuals and the unit. The impact on poorly trained or ill equipped personnel will be serious and may well threaten their ability to continue their mission even in areas outside of those directly affected.

FUNDAMENTALS OF NUCLEAR, BIOLOGICAL AND CHEMICAL DEFENCE

4. The following fundamentals form the basis for nuclear, biological and chemical defence. These measures inter-relate and must be considered together to minimize the effects from nuclear, biological and chemical weapons and toxic industrial hazards.

   a. **Hazard Avoidance**. Hazard avoidance consists of the policies, doctrine, equipment and procedures necessary to detect, identify, warn, report and predict the hazards associated with nuclear, biological and chemical weapons

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and toxic industrial hazards to enable personnel to survive and continue to operate in a contaminated environment.

b. **Protection**. Protection consists of the policies, doctrine, equipment and procedures necessary to provide individual, collective and casualty protection and medical countermeasures to enable personnel to survive and continue to operate in a contaminated environment.

c. **Contamination Control**. Contamination control consists of the policies, doctrine, equipment and procedures necessary to control the spread of contamination and decontamination to remove or reduce the hazard.

FACTORS TO CONSIDER

5. The application of the fundamentals will be dependent upon several factors. No single solution can be automatically applied to every situation anticipated in the nuclear, biological and chemical and toxic industrial hazards environment, each commander must assess the following factors in determining the proper course of action:

a. assigned mission;

b. identification of the type, degree and persistency of the hazard;

c. influence of weather and terrain on the hazard;

d. impact of casualties and equipment damage on the unit's ability to accomplish its mission;

e. effect of operations in partial or full nuclear, biological and chemical protection on morale and physical capability of personnel;

f. the time required and available to react to a nuclear, biological and chemical attack or toxic industrial hazards release;

g. estimate of effort necessary to eliminate or reduce the contamination hazard;

h. capabilities of the unit itself, or availability of specialized nuclear, biological and chemical unit assistance for hazard reduction;

i. vulnerability to and probability of follow-on nuclear, biological and chemical attacks or deliberate toxic industrial hazards releases; and

j. exploitation by enemy of conventional forces immediately following nuclear, biological and chemical attacks/deliberate toxic industrial hazards release.

HAZARD AVOIDANCE

6. Hazard avoidance refers to those pre-attack and post-attack actions leading to individual and collective measures taken to detect, identify, avoid, and minimize the aspects of immediate and residual nuclear, biological and chemical hazards/toxic industrial hazards. Hazard avoidance will reduce, and sometimes eliminate the need for protection and decontamination. Our forces may be exposed to immediate and residual nuclear, biological and chemical hazards/toxic industrial hazards as a result of overt or covert target attack, passing through nuclear, biological and chemical contaminated areas, or being in the hazardous zone of vapour, aerosol, liquid or fallout particle cloud travel. The primary defensive measure against such hazards is avoidance. The following should be considered in developing a hazard avoidance plan:

a. **Intelligence**. Intelligence must be capable of identifying a risk or threat, including delivery systems, political and military intentions.

b. **Adopting Passive Defensive Measures**. Our forces will implement passive defensive measures to include deception, camouflage, position selection related to risks, communications security, and tone down of materials and infrastructure. Dispersion, use of shelters and protective covers, and concealment will be continuously exercised. Personnel and mobile equipment not imperative to the accomplishment of the mission and to the protection of a fixed installation or unit should be in dispersed areas outside the base (off-base concept) or area of immediate operations.

c. **Adopting a Protective Posture**. The normal protective measures for a given threat level are given in standard operating procedures. These may be modified on the judgement of the commander.

d. **Detecting, Identifying and Marking the Contaminated Areas**. Capabilities to detect, identify, and mark contaminated areas are required by each organization to provide timely alarms and warnings of nuclear, biological and chemical hazards/toxic industrial hazards in order to avoid unnecessary exposure to such hazards.

(1) Advance warning is a vital component of hazard avoidance.

(2) Each sub-unit should conduct its own nuclear, biological and chemical/toxic industrial hazards reconnaissance to detect, locate and identify nuclear, biological and chemical/toxic industrial hazards.

(3) All units should conduct nuclear, biological and chemical/toxic industrial hazards reconnaissance as part of their normal mission activities.

(4) Armoured reconnaissance units conduct specialized nuclear, biological and chemical reconnaissance and survey to locate and mark contaminated areas. They supplement reconnaissance efforts of unit nuclear, biological and chemical survey teams and perform these tasks for forces not possessing an organic reconnaissance capability. They accomplish the following specific functions:

(a) locate clean areas on land for assembly, decontamination, and personnel relief;

(b) determine the contaminated status of key terrain, major routes, airfields and port facilities;

(c) mark extremities of contaminated areas; and

(d) collect and forward samples of unidentifiable biological or chemical agents, or unidentified compositions of ground radioactivity, to designated military or civilian laboratories capable of analyzing them.

e. **Warning and Reporting**. Operations and intelligence personnel and appropriate levels of command should report nuclear, biological and chemical/toxic industrial hazards activity and reconnaissance information by automated systems as a standard, continuous function. Nuclear, biological and chemical staff personnel responsible for nuclear, biological and chemical functions provide technical assistance in the analysis of data. Information of vital concern must be sent to higher, lower and adjacent commands. Staff sections or organizations that are directly affected by nuclear, biological and chemical hazards and toxic industrial hazards should be immediately made ware of type, extent and nature of the hazard. Nuclear, biological and chemical reports and toxic industrial hazards information will become an integral part of future planning considerations for commanders to evaluate and use to support their plan of operations. ATP 45 governs the reporting, predicting, and warning of hazards associated with nuclear, biological and chemical attacks.

f. **Relocating or Rerouting to an Uncontaminated Area**.

(1) **Mobile Forces**. Movement of forces to an uncontaminated area may be necessary to minimize continued exposure to residual nuclear, biological and chemical hazards/toxic industrial hazards. If a unit occupying a previously uncontaminated position is exposed to nuclear, biological and chemical hazards/toxic industrial hazards, personnel must automatically respond to the nuclear, biological and chemical alarm, take protective measures appropriate to the hazard involved, sound the alarm, conduct immediate decontamination, submit required reports and continue their current mission in place. The commander should immediately initiate action to determine the type and persistency of the contamination hazard.

(a) If the hazard is non persistent (i.e., blood agent), the unit can continue its mission in place and maintain its protective posture, as the hazard should dissipate within minutes.

(b) If the hazard were semi-persistent or persistent (nuclear fallout, suspected biological agents, or liquid chemical agents), the unit would maintain protective posture, minimize further exposure to the hazard and continue its mission. The commander would rapidly analyze the situation to determine when relocation to a clean alternative position is possible. He would consider the tactical situation at this location, the tactical implications of such a move on his own and neighbouring units, the protection provided by his present position, the increased exposure to the hazard incurred by relocation, the implications of spreading contamination when relocating, the possibility of further nuclear, biological and chemical or toxic industrial hazards risk, and the impact of continuing the mission in partial or full protection. The decision to begin operational or thorough decontamination must be made quickly as permeable surfaces start to absorb liquid chemical agents within 15 minutes to one hour. The absorbed agent then poses a subsequent threat when it off-gases. The unit or formation should however relocate to a clean position as soon as possible after the end of the current mission. Normally, a unit cannot be expected to fight dirty for more than 24 hours with an upper limit of 36 hours.

(c) During relocation every effort should be made to avoid further exposure to the contamination hazard. To prevent spread of contamination to the alternate position, such movement should include at least operational decontamination of personnel and equipment prior to occupying the new position. Once the unit arrives in an uncontaminated new position, it will continue its mission as required. If thorough decontamination has already been carried out, individual protection may possibly be reduced or discontinued.

(2) **Installations**. The type of operations carried out at installations will determine the possibilities of relocating to an uncontaminated area. If reconnaissance indicates that clean areas exist on the installation and relocation is possible, the commander will consider factors such as risks to personnel, degradation in speed of working in complete individual protection and the requirement for lengthy decontamination procedures prior to relocating to the clean area. When possible, clean vehicles and aircraft should be relocated and allowed to operate from clean areas to prevent the spread of contamination.

PROTECTION

7. Prior to hostile use of nuclear, biological and chemical weapons, commanders should evaluate the vulnerability of their unit to nuclear, biological and chemical hazards. Similarly they should analyze the toxic industrial hazards risks they are likely to face in projected areas of operations. Based on this analysis, mitigation techniques and appropriate levels of individual and collective protection should be established. Individual and collective protection enhance survivability so individuals must be trained and equipped to defend themselves against the immediate and residual effects of nuclear weapons, radiological, biological and chemical agents and toxic industrial hazards, and to perform their duties while fully encapsulated. Medical countermeasures must be put into effect before an attack is made.

8. **Individual Protection from nuclear, biological and chemical hazards/toxic industrial hazards**.

a. Requirements exist for prophylactic or preventive compounds (immunizations, medications) as well as other pre-treatment measures (skin barrier sprays or repellents) which would be administered under the commander's directions to individuals to enhance their prospects of survival if exposed to small concentrations of ionizing radiation or biological or chemical poisoning. Further, prophylactic and pre-treatment measures could reduce or simplify subsequent requirements for medical therapy.

b. Each individual is provided with an individual respiratory protection system (or mask), prophylaxis/pre-treatment medications, antidotes, a decontamination kit, a first aid kit, and protective clothing to protect against nuclear, biological and chemical hazards and, as far as possible, toxic industrial hazards. (Commanders should be aware of individual protective equipment against some TIC).

c. Commanders should ensure that personnel are monitored for exposure to nuclear, biological and chemical hazards/toxic industrial hazards and that measures are taken to limit further exposure during offensive and defensive operations.

9. **Collective Protection**. Collective nuclear, biological and chemical protection is defined as protection provided to a group of individuals in a nuclear, biological and chemical environment which permits relaxation of individual nuclear, biological and chemical protection; similar provision may be required during operations in a toxic industrial hazards environment. Any reduction in individual protection will depend on the type of collective protection provided, the type of work activity, and the type of enclosure. Collective protection in land operation is limited to essential function that must continue unhindered during and after nuclear, biological and chemical/toxic industrial hazards attacks. Well constructed land fighting positions and bunkers provide excellent protection against all the effects of a nuclear detonation. Prepared positions and rooms inside buildings may have their biological, chemical and toxic industrial hazards protection capabilities enhanced quickly by adding simplified COLPRO systems.

CONTAMINATION CONTROL

10. **Contamination Control.** Measures must be taken before, during and after a nuclear, biological and chemical attack/toxic industrial hazards release to limit the spread of contamination and avoid putting other individuals, equipment and areas at risk. Equipment should be protected by the use of chemical agent resistant materials. Chemical resistant covers should be put over equipment, materiel, and bulk supplies in open storage to prevent contamination.

11. **Decontamination**. Decontamination is the process of making any person, object or area safe by absorbing, destroying, making harmless or removing toxic industrial hazards, biological or chemical agents or removing radioactive material clinging to or around it. Contamination hazards must be reduced or removed for the following reasons:

a. to reduce the hazard to the individual;

b. to allow the mission to continue with minimum delay or interruption;

c. to allow individual levels of protection to be reduced; thereby minimizing the degradation in individual performance; and

d. to prevent the spread of contamination to clean personnel, materiel, and terrain.

12. **Decontamination Categories**. Based on these necessities decontamination aims at:

a. minimizing casualties and saving lives (immediate decontamination),

b. sustaining operations, reducing the contact hazard and limiting spread (operational decontamination), and

c. reducing or eliminating the need for individual protective equipment (thorough decontamination).

13. **Definition of Categories**. The three categories of decontamination are defined as follows:

a. **Immediate**. Decontamination carried out by individuals upon becoming contaminated, to save life and minimize casualties. This may include some decontamination of personal clothing and/or equipment.

b. **Operational**. Decontamination carried out by the individual and/or a unit, restricted to specific parts of operationally essential equipment, materiel and/or working areas, in order to minimize contact and transfer hazards and to sustain operations. This may include decontamination of the individual beyond the scope of immediate decontamination, as well as decontamination of mission essential spares and limited terrain decontamination.

c. **Thorough**. Decontamination carried out by a unit, with or without external support, to reduce contamination on personnel, equipment, materiel, and/or working areas to the lowest possible levels to permit the partial or total removal of individual protective equipment and to maintain operations with minimum degradation. This may include terrain decontamination beyond the scope of operational decontamination.

14. **Specialized Decontamination Units.** Nuclear, biological and chemical decontamination units conduct or assist in thorough decontamination of equipment. The nuclear, biological and chemical decontamination unit will possess the specialized equipment and expertise to support large-scale decontamination. The supported unit will determine which vehicles and equipment requires decontamination, furnish the necessary manpower assistance, and provide area security.

MEDICAL SUPPORT

15. The medical support system must provide for the evacuation and management of casualties in a nuclear, biological and chemical/toxic industrial hazards environment. Unit medical personnel will conduct initial medical triage to determine the extent of injury and treatment necessary. These medical personnel will recommend a course of action to the commander to include the need for decontamination, treatment, return to duty, or evacuation.

16. Contaminated casualties requiring evacuation should be decontaminated by their parent unit prior to entering the medical evacuation and treatment system. Patients will continue to wear their protective clothing during evacuation and at intermediate

medical treatment facilities unless it must be removed for decontamination purposes or emergency treatment. The chemical agent, patient, protective wrap (casualty bag) should be used for the further transportation of clean or decontaminated patients who have had their protective clothing removed.

17. Evacuation to medical treatment facilities will be carried out by medical evacuation transport, supplemented by other transportation assets as required. Evacuation procedures and provisions must aim to avoid the inside of the ambulance from becoming contaminated. Ambulances should have collective protection for patients and medical personnel or, it that is not possible, have chemically hardened interiors to ease decontamination.

18. The medical treatment facilities for casualties in a nuclear, biological and chemical/toxic industrial hazards environment will provide separate areas and control procedures for the required medical care, while controlling contamination. Special equipment (individual protection, detection, medical decontamination, respiration and collective protection systems) will be used to assist with triage, diagnosis, treatment, and evacuation of patients. Nuclear, biological and chemical casualty bags will restore individual protection. Where there are mass casualties, non-medical personnel must be provided by the support organization to conduct patient decontamination under medical supervision.

COMBAT SERVICE SUPPORT CONSIDERATIONS

19. Residual contamination poses as great a problem to combat service support organizations as to combat forces. Combat service support planning and defence systems must address all aspects associated with operations in a nuclear, biological and chemical or toxic industrial hazards contaminated environment. These include:

a. requirements, priorities and procedures for decontamination and evacuation of materiel at supply, maintenance, and personnel support sites;

b. resupply of expended nuclear, biological and chemical equipment, protective clothing, decontaminants, and medical supplies;

c. evacuation priorities, decontamination, and treatment of nuclear, biological and chemical casualties or conventional patients who have been contaminated with chemical/biological agents, TIC or radioactive particles;

d. decontamination of food and water sources for human consumption;

e. graves registration procedures for moving, decontaminating and marking nuclear, biological and chemical/toxic industrial hazards contaminated remains;

f. movement of both personnel and organizational replacements through contaminated areas;

g. measures to reduce the impact of the nuclear, biological and chemical/toxic industrial hazards environment on civilian military cooperation efforts (i.e., the utilisation of civilian resources/logistics; and

h. procedures for handling mass casualties whether conventional, nuclear, biological and chemical or conventional plus nuclear, biological and chemical/toxic industrial hazards contaminated.

REAR AREA PROTECTION

20. Enemy use of nuclear, biological and chemical weapons in rear areas, particularly of persistent chemical agents, or the release or risk of release of toxic industrial hazards will require that adequate defensive measures be established in those areas. The commander must coordinate requirements for reconnaissance, survey, decontamination, medical and nuclear, biological and chemical warning and reporting services for forces operating in his rear area. Liaison and mutual support should be arranged with host nation support agencies whenever possible.

SUMMARY

21. Our forces are likely to encounter nuclear, biological and chemical weapons and/or toxic industrial hazards on some scale in any future operation. The defensive measures outlined in this doctrine should minimize the impact of nuclear, biological and

chemical attacks or toxic industrial hazards on our forces and on our ability to operate in a contaminated environment. They are based on:

a. avoidance of contamination whenever possible, and protection and effective decontamination when avoidance is not possible;

b. early warning of possible hazards through detection, reconnaissance, survey, monitoring and marking of contaminated areas and the organization of an effective alarm and warning system;

c. protection of the individual by using individual protective or collective protection equipment;

d. realistic nuclear, biological and chemical (including toxic industrial hazards) training integrated into all other forms of training and exercises;

e. designing ships, vehicles, weapons and equipment to withstand nuclear attacks and to ease nuclear, biological and chemical and toxic industrial hazards decontamination; and

f. effective medical support.

OPERATIONS IN BUILT-UP AREAS

22. **General.** Built-up areas include cities, towns, village and concentrations of industrial installations. These areas are increasing in number and size throughout the world, particularly in Western Europe. For this reason, the tactics and techniques of fighting in built-up areas are becoming increasingly important. The effects of any operation on the civilian population must be considered in the planning and conduct of fighting in built-up areas. In this context, the Geneva Protocol should be borne in mind, particularly those aspects concerning the civilian population and responsibilities for protection of national culture.

23. **Employment Considerations.**

a. **Concept.**

(1) Built-up areas normally are the centres of the road network. As the need for roads as axis for the movement of wheeled vehicles and specialist equipment, and even more as lines of communication will remain, despite the cross-country mobility of land forces, it will be decisive to retain control of built-up areas. Furthermore, these areas often contain valuable economic or political installations and large numbers of the population. They may therefore become areas of combat.

(2) The destructive effect of fire may make roads and streets completely impassable. Seriously damaged built-up areas pose a major obstacle.

(3) Whether attacking or defending, a large number of infantry will be required. If a built-up area is defended, it may be preferable for an attacker to bypass or encircle it rather than become engaged in the task of taking the area which is a costly operation both in time and in manpower.

(4) A built-up area which can easily be avoided has little defensive value though it may have a channelling effect. Thus a built-up area is usually only worth defending if it is located where the enemy has to launch a direct attack or to make a time-consuming manoeuvre to bypass it.

(5) The decision whether or not to attack or defend an extended built-up area will be taken by the highest command. A decision to defend must take account of the adverse effects on morale of abandoning important urban areas, with their populations, to the advancing enemy. Equally, the commander will realize that the defence of the built-up area will require a disproportionate number of troops and may involve the civilian population in an area of combat.

b. **Mission**. While the defender tries to draw the attacker into the defended area, the attacker has to decide how to deal with the situation. He has three options:

(1) to attack the position;

(2) to neutralize the defender in the built-up area; or

(3) to seal off and bypass, using follow-up troops to capture and clear the area;

c. **Characteristics**. Operations in built-up areas are characterized by:

(1) limited fields of fire and observation;

(2) protection, cover and concealment for troops and equipment;

(3) reduced possibilities for manoeuvre, particularly for mechanized units, but increased possibilities for infiltration and bypassing;

(4) close-quarter combat including the increased vulnerability of vehicles to short-range attack;

(5) the presence of a civilian population which can very seriously limit military actions;

(6) difficulties in command, control and communication;

(7) higher rates of consumption of ammunition and combat supplies; and

(8) a battle that is likely to be fought on multiple levels: at street level, on rooftops and in buildings and underground in sewers and subway systems.

d. **Limitations**. The conditions peculiar to fighting in built-up areas produce the following limitations:

(1) **Fields of Observation and Fire.** Fire positions will be selected to take advantage of the limited observation and fields of fire available.

(2) **Information**. Detailed knowledge of the area may offer a relative advantage to the defender.

(3) **Concealment.** Positions are difficult to locate, strengths are hard to estimate and enemy intentions are hard to define.

(4) **Movement.** The ability to move is generally very limited. The more buildings are damaged, the more cover there is for the defender, and the harder it is for the attacker to advance.

(5) **Weapon Employment**. Short range weapons and grenades will be used extensively. Mutually supporting fire will be difficult to achieve. Indirect fire weapons and tanks may be of limited use.

(6) **Fire**. Depending upon the construction, building fires may be an important consideration.

(7) **Stress**. Street fighting is physically and mentally exhausting, success being measured in metres, building by building. In these circumstances, much will depend on the initiative and standard of leadership at the lower levels of command. The maintenance of combat efficiency may require the frequent rotation of troops in contact.

24. **Conduct of operations**.

25. **Organization**.

a. **Defensive Operations**. The defence of a built-up area is organized around terrain features and buildings which preserve the integrity of the defence and provide ease of movement to the defender. Defences are prepared in depth. Infantry will normally fight dismounted in small groups, reinforced by engineers and armour.

b. **Offensive Operations.** Offensive operations in built-up areas may require large numbers of troops and much time. The infantry will normally fight dismounted, supported by engineers and armour.

26. **Planning**

a. **Defensive Operations.** In large built-up areas, the concept of operations should be flexible and exploit depth, with the defender concentrating on moving forces from key terrain features or buildings to other similar features, to counter the main thrust. Although the principles employed are generally the same as for other defensive operations, the differences are in the techniques employed and the emphasis on certain fundamentals:

(1) Since most actions are conducted by small units, control is decentralized.

(2) Although concealment and cover will be plentiful, observation will be limited. Special attention must be given to achieve mutual support and all-round defence to counter enemy infiltration. The nature of the terrain usually leads to close-quarter combat. Defensive measures may include the barricading of streets and the employment of short-range direct fire weapons. Ideally the defence should be based on the following:

(a) mutually supporting posts on the perimeter which redeploy or shift when they can no longer influence the battle;

(b) mutually supporting strong points in depth; this may not be possible except at low level. A local reserve must be designated to cover gaps; and

(c) a centrally located mobile reserve.

b. **Offensive Operations**. An attacker should balance the need for protection and the possibilities for exploiting weaknesses in the enemy defences. In some circumstances, a bold deep thrust into the centre of the defence may disrupt the enemy enough to destroy his capability to defend. The following points are important when planning offensive operations:

(1) **Simplicity**. Control is difficult and plans must be simple and flexible.

(2) **Information**. Maximum information on the layout of the town and the defender's dispositions is essential.

(3) **Essentials**. The plan should note the following:

(a) **Objectives.**

i. The attack may be planned so that progress to the final objective is made by a series of intermediate objectives. These provide the firm base for a subsequent phase and should be held in strength to prevent reoccupation by the enemy.

ii. The selection of the final objective should ensure that its capture will make the defence untenable.

(b) **Control**. Control by commanders at all levels is vital. Axis of advance, objectives, report lines, phase lines and boundaries are of particular importance.

(c) **Momentum**. Momentum must be maintained, night and day, as the slightest pause will give the enemy time to regroup, react and regain local initiative. It is, therefore, essential that the plan caters for:

i. Successive units and sub-units taking over the advance by leap-frogging.

ii. Reserves placed well forward so that they can react quickly to the unexpected or exploit a tactical advantage.

iii. The replenishment of ammunition and other combat supplies and the evacuation of casualties.

27. **Execution**

a. **Defensive Operations**

(1) **Main Defensive Area**. The position of the Main defensive area will be influenced by the types and quantity of forces available, and the size of the built-up area to be defended. It should not appear to the enemy as a clearly defined line on which he can concentrate his supporting fire and, if possible, should be sited to prevent the enemy from entering the outskirts of the area unhindered and using the cover of the buildings to deploy his forces.

(2) **Area Responsibilities**.

(a) Defences are coordinated in order to prevent encirclement and penetration. Measures are taken to maintain surveillance over the entire area, and to defend, at short notice, in any direction.

(b) In larger built-up areas, where the problem of a long perimeter is aggravated by restricted fields of fire, the defence will have to concentrate on selected areas only. In these areas, defence may be based upon self-contained strong points around which mobile elements operate.

(3) **Strong Points**. Building or groups of buildings which are strongly constructed and well sited for defence may be used as strong points. These should be integrated into the overall defence and prepared for continued resistance even when bypassed and isolated.

(4) **Obstacles**. The preparation of obstacles will impose heavy demands on engineer resources. Blocks of houses and large buildings may be used as obstacles to the enemy with their canalizing effects being improved by using local material, barbed wire, craters and road blocks to create barriers. The barrier plan must be carefully coordinated and disseminated to all units.

(5) **Surprise**. The demoralizing effect on the enemy of well-planned booby traps in houses, delayed charges and obstacles can contribute to a successful defence.

(6) **Aggressive Action**. The defender should exploit his knowledge of the built-up area to act offensively. Patrolling, raids, sniping and ambush tactics can be used to surprise and disrupt the attack. The defender may also attempt to infiltrate back into areas which the enemy has cleared but is not occupying.

(7) **Counter-Attacks**. In this environment major counter-attacks require centralized planning and decentralized execution. At the lower level, counter-attacks take advantage of the cover and concealment afforded by built-up areas. Small units aim to regain key terrain, including buildings to attempt to eject the enemy from the area.

b. **Offensive Operations**. The attack on a built-up area may be conducted as any other.

(1) **Isolation Of The Area**. The aim is to encircle the built-up area, but it may only be possible to isolate the area by seizing terrain features dominating the approaches. Enemy defences of terrain obstacles may prevent complete isolation. As a minimum, the attacker must secure positions outside the area from which he can support the point of entry, the capture of positions, and raids to disrupt key positions.

(2) **Break-in**. This consists of the advance to the perimeter of the area and the seizure of a foothold. This reduces or eliminates the defender's ground observation and his ability to direct fire onto the approaches. The attacker uses concealed approaches from the foothold area to close with the defender and may require the systematic clearance of the area. This part of the plan must be simple with limited objectives. Plans must emphasize the need to maintain momentum.

(3) **Fighting Through**. This consists of clearing the enemy. This stage is characterized by decentralized actions of small units, often reinforced by demolition teams, to accomplish the clearance of assigned zones. In extended built-up areas it may sometimes be necessary to clear just a corridor as a means of crossing the area.

c. **Use of Armour**.

(1) **General**. Although the brunt of operations in built-up areas falls on the infantry, their success will depend on all arms cooperation. This includes the use of armour which, with infantry protection, can provide direct fire suppor. They will be of particular value in the attack as cut-off troops and in dominating open areas.

(2) **Tasks**.

(a) In offensive operations, armour can be used to provide direct and suppressive fire and to provide momentum in the attack.

(b) In defensive operations armour may form an integral part of the perimeter force and a mobile central reserve. They will also be useful within defended localities, providing mobile support for strong points or in the anti-armour role from prepared fire positions.

(3) **Restrictions**. The use of armour in built-up areas is restricted by:

(a) a lack of mobility as they are confined to roads or streets which will often require route clearance;

(b) buildings, which will restrict the full traverse of turrets;

(c) the elevation of main armament may be insufficient to reach top floors and roof tops; and

(d) vulnerability to short range anti-armour weapons requires infantry support and protection for armour.

d. **Employment of Combat Support Forces**

(1) **Artillery**. The main considerations concerning the use of artillery in built-up areas are:

(a) **The Direct Fire Role**. Guns used in the direct fire role can be very effective against strong points and buildings.

(b) **The Indirect Fire Role**.

i. The close proximity of the enemy and own troops increases the risk of fratricide.

ii. Observation and adjustment of fire is more difficult. The use of air observation posts may help to overcome this problem.

(c) **Fire Effects**. Supporting artillery fire may create obstacles which have to be crossed later.

(2) **Air**. Air will be particularly valuable for:

(a) reconnaissance and photographic reconnaissance,

(b) precision bombing against strong points, and

(c) interdiction tasks against enemy forces attempting to withdraw or moving to reinforce.

(3) **Aviation**. Helicopters may be used for the following tasks:

(a) visual and photographic reconnaissance to perform;

(b) to provide fire support;

(c) to control indirect fire or close air support;

(d) to deliver troops to the tops of high buildings;

(e) to move cut-off parties and reposition forces;

(f) to provide radio relay and the positioning of communications facilities;

(g) to evacuate casualties, particularly from areas inaccessible to wheeled or tracked vehicles, and

- (h) to deliver supplies.

(4) **Air Defence**. In order to allow for early engagement of enemy aircraft, it may be necessary to deploy air defence units.

(5) **Engineers**. Tasks for engineers are:

- (a) **In Defence**.
    - i. Denial of areas and routes by demolitions and other obstacles, mining and booby trapping, if authorized,
    - ii. clearance of obstacles,
    - iii. strengthening buildings,
    - iv. clearing a network of routes for infantry, through buildings, and
    - v. clearing fields of fire.
- (b) **In the Attack**.
    - i. Clearing mines, booby traps, debris and obstacles,
    - ii. clearing a network of routes for infantry through buildings,
    - iii. using explosives to destroy strong points and fortifications, and
    - iv. maintaining and improving routes/roads to permit movement.

(6) **Electronic Warfare**. Electronic warfare effectiveness will be limited by the short range of electronic equipments (both friendly and hostile). As a consequence, more resources than are usually available may be required.

e. **Responsibilities of Command and Control**. Because of the restrictions on communications, observation and the limitation of access, control will be difficult and should normally be decentralized. The initiative of commanders of small units/detachments assumes added importance during operations in built-up areas.

f. **Civil-Military Cooperation**. Close cooperation between civil authorities, territorial commands and tactical commanders should be established and maintained. Within the restraints of the resources available and the mission, the tactical commander should provide, or assist in the provision of:

- (1) evacuation,
- (2) food and medical care,
- (3) maintenance of public order and security,
- (4) protection from the immediate effects of military operations, and
- (5) maintenance of essential services.

g. **Coordination**. The following may assist in the control of fighting in built-up areas:

(1) **Sectors**. The area may be divided into clearly designated sectors.

(2) **Report Lines**. These will normally be selected along streets at right angles to the line of advance.

(3) **Boundaries**. These should be parallel to streets, and may include the buildings on both sides of the street to avoid splitting an avenue of approach.

(4) **Coordinating Points**. These are essential to maintain cohesion.

h. **Communications**. Communications in built-up areas can be extremely difficult. Radios will be heavily screened and subject to greatly reduced ranges. As a consequence, they must be carefully sited and maximum use must be made of rebroadcast stations and the remoting of antennae to high points. The use of high power sets in armoured vehicles may have an advantage over man portable sets. If time and the battle situation allow, maximum use must be made of the civilian telephone system supplemented by the laying of line. This will be more useful in the defence than the offence.

i. **Sustainment**.

(1) **General**. Support plans for a defending force must consider the prospects of a siege. The situation may be complicated by the need to provide for the civilian population in the area, but the commander should ensure that their presence is not permitted to hamper operations. In co-ordination with the local civil authority, arrangements must be made for:

(a) the distribution of food; rationing may be necessary,

(b) sanitation and public health,

(c) maintenance of medical service, and

(d) maintenance of public order and safety by policing and measures such as curfews.

(2) **Supplies**. The defenders will be able to pre-stock supplies of all categories within the area, preferably in several distribution points. Resupply may be possible by airdrop or helicopter.

j. **Casualty Evacuation**. Stretcher teams may be required to move patients through rubble-filled streets which are impassable to vehicles. Helicopters may be used in this role and for evacuation out of the built-up area.

k. **Fire-fighting**. In the defence of large towns or cities, attention must be paid to fire-fighting measures. Fire-fighting is primarily an engineer role but it may be a responsibility of all units, according to policies established by commanders.

OPERATIONS IN MOUNTAINS

28. **General**. Mountainous terrain is characterized by a marked difference in elevation with steep slopes and valleys over an extended area. Weather conditions will also vary considerably over a small area. It may include built-up areas and plains between mountain ridges, plateaux, passes and the mountain sides themselves.

29. **Employment considerations**

a. **Characteristics**. The important military characteristics of mountainous areas are the following:

(1) Sharp differences in elevation provide excellent observation or may totally mask large areas of ground.

(2) The structure of the terrain will normally be such that it will follow a distinctive pattern or grain with the road and track network tending to follow the drainage pattern. This will have a major impact on manoeuvre as the bulk of the forces will be forced to operate with the grain of the country.

(3) The road network will be limited, and cross-country movement in the higher regions will frequently be extremely difficult or impossible.

(4) The important built-up areas will be concentrated in the valleys.

(5) The higher elevation will frequently be exposed rock and any digging will be time consuming, requiring specialized equipment.

(6) The weather is normally unstable and changes very rapidly.

(7) Operations in mountainous areas are likely to be more exhausting for the troops, particularly for dismounted troops, when moving.

(8) In many mountain areas, there is forest cover, particularly on lower slopes.

(9) Communications are difficult due to screening.

b. **Concept**. Success in operations in mountains is usually achieved by the forces that gain control of key terrain, such as mountain and ridge tops, valley outlets, mountain passes, defiles and routes. Some of these will have a canalizing effect and can be controlled by forces on dominating heights around them. The battle for the heights will, therefore, be the governing factor in operations in mountains. Accordingly, they will be likely objectives in an attack and will be the key terrain on which the defence will be based. Due to the restricted mobility of ground vehicles, the use of helicopters for tactical mobility, reconnaissance, resupply and evacuation may have decisive importance.

c. **Mission**. The mission given to any force operating in mountainous terrain will not differ from that normally assigned. It is the way the mission is accomplished that is different.

d. **Capabilities**. Dismounted infantry can move almost anywhere in the mountains, provided they are properly prepared. Only infantry can seize and hold the vital high ground which dominates approaches. Often, small forces of company or even platoon size can stop or delay much larger enemy forces by occupying key positions on a pass or ridge. They are even more effective when they can call on the support of artillery and/or close air support.

e. **Limitations**. The following limitations apply to operations in mountainous areas:

(1) The absence of sufficient roads, railways and airfields may restrict the size of the force that can be supported.

(2) In offensive operations, the necessity to control the high ground to secure movement uses up a large number of dismounted troops.

(3) Normally, armoured forces will be restricted to main axis, in the valleys, and may only be able to operate in small numbers.

(4) Because of the serious restrictions to movement, initial deployment and task organization cannot be easily changed.

(5) Terrain may often restrict mutual support.

30. Conduct of Operations

a. **Organization**.

(1) **Defensive and Delaying Operations**. The organization of the force will be influenced by the terrain features. Elements should be capable of independent action for extended periods. The size of the forces allocated to specific tasks must allow for the local commander to form his own reserve. The practicability of a central reserve will be determined by the estimated response time for its deployment.

(2) **Offensive Operations**. Due to the nature of the terrain, self-contained task organizations must be set up. The forces required will be relatively greater than in operations in level terrain, in order to overcome the advantages enjoyed by the defender in mountainous areas. The ability of the commander to influence the battle will be enhanced if he has a centralized reserve which can be moved quickly, a task for which airmobile forces are particularly suitable.

b. **Planning**.

(1) **Defensive Operations**. The following factors apply to defensive planning:

(a) Dominant terrain provides the defender with good observation and firing positions but it will be difficult to achieve a completely cohesive position.

(b) The slopes and other terrain features will impose difficulties on the attacker.

(c) There are areas which may seem to be impassable or extremely difficult for ground forces to use, however, the ability of an enemy to overcome such obstacles should never be underestimated.

(d) The scarcity of roads places restrictions on the employment of tanks or other combat vehicles and makes them vulnerable.

(e) At smaller unit levels, a defender can deceive the enemy as to his exact strength, purpose and dispositions.

(f) It is difficult to move reserves quickly unless helicopter lift can be used.

(g) Considerable time must be allowed for the preparation of defence positions.

(h) Troops will require special clothing and equipment suitable to the environmental conditions in which they will be operating.

(2) **Delaying Operations.** The creation of obstacles along the restricted number of routes will be particularly useful in a delaying operation. Mountainous terrain can be used very effectively for ambushes. Flank security and continuous surveillance are essential to prevent enemy infiltration. Close coordination is required to prevent portions of the delaying force from being cut-off.

(3) **Offensive Operations**. Plans should be based on seizing the dominant terrain features as objectives. Early in the battle, particular effort may be necessary to capture vantage points for observation.

(4) **Nuclear, Biological and Chemical Effects**.

(a) **Nuclear**. Nuclear weapons can create special effects in mountainous areas which are difficult to predict. The blast effect can create obstacles which ground forces will only bypass with difficulty. Troops are highly vulnerable as they lack armoured protection and the strong protective shelters which can be prepared in level terrain.

(b) **Chemical**. On broken ground, vapours will flow downhill to accumulate in dips and hollows and persist longer. The unpredictable weather conditions which are characteristic in mountainous areas will make the effects of chemical agents harder to predict.

c **Execution**.

(1) **Defensive Operations.** The defence will be more static in nature and characteristically be conducted in a number of isolated actions. The advantages which the terrain offers the defender may allow for an extension of normal defensive sector width. It will be difficult for the defender to change the main effort.

(2) **Delaying Operations**. It may be easier to conduct delaying operations in this type of terrain as the enemy is restricted to a limited number of routes. The withdrawal route must be secured for the delaying force.

(3) **Offensive Operations.** The attacker is likely to meet the strongest resistance on the few available routes. He should avoid attacking the enemy from the front and obtain access to these routes by envelopment.

d **Employment of Combat Support Forces**

(1) **Artillery.** Fire support, both artillery and mortar, must be planned well in advance as deployment and ammunition resupply in mountainous terrain is difficult and slow. The following factors are of special importance:

(a) **Mobility**. In some mountainous areas mortars or light guns which can be air lifted or manhandled into position may be the only means of fire support.

(b) **Terrain**. It will be difficult to find artillery firing positions. The terrain will degrade the usefulness of flat trajectory fire, including naval guns.

(c) **Observation**. Loss of visibility, due to weather conditions and the screening of areas by intervening high terrain will increase the difficulty of observation. To overcome this, it may be necessary to increase the number of observers or to use airborne observers.

(d) **Fire Effects**. Artillery fire may start landslides/avalanches. Swirling winds may reduce the effectiveness of smoke. The rocky terrain will increase the munitions effect on unprotected personnel.

(2) **Air.** The nature of mountainous terrain and the unpredictable weather conditions will complicate, or even restrict tactical air support to land operations. Within the operational limitations of terrain and weather, the following types of support will be of particular value:

(a) **Tactical Air Reconnaissance and Surveillance**. Tactical air reconnaissance may be the only method of obtaining timely information on enemy activities screened by the terrain from other surveillance systems.

(b) **Battlefield Air Interdiction**. Because of the limited number of routes available there may be excellent opportunities for battlefield air interdiction.

(c) **Close Air Support**. Delivery of weapons onto targets on mountain sides or in the valleys may be difficult. Close air support may be the only method available to attack targets on reverse slopes.

(3) **Aviation**. Helicopters can greatly assist in overcoming the difficulties associated with the movement and support of ground forces in mountains. However, helicopters may have particular employment restrictions due to the weather and altitude. They may also be more vulnerable to air defence and small arms weapons placed on mountain slopes.

(4) **Air Defence**. The general characteristics of air defence remain unaltered. Problems which arise are:

(a) the selection of sites affording adequate radar coverage, particularly for the high to medium altitude air defence artillery,

(b) access to the selected gun positions and radar sites,

(c) local defence of isolated gun positions and radar sites, and

(d) ammunition resupply.

(5) **Engineer**. The following tasks are of particular importance in mountain areas:

(a) **Mobility**. Engineers may be required to provide support for the movement of supplies or casualties in very rugged terrain. Engineers must be well forward in combat formations to reduce obstacles such as washouts, craters, mines, landslides, and avalanches. New bridges may be needed to cross streams, replace weak bridges, and cross gorges. Construction of new tracks is a major engineering task requiring excavation and fill.

(b) **Counter-mobility**. Obstacles such as blocking roads and passes, destroying tunnels, and emplacing minefields are particularly effective in rugged terrain.

(c) **Survivability.** Irregular mountain terrain provides many opportunities for cover and concealment. Light engineer equipment transported by helicopter can provide valuable assistance in the protection of manoeuvre units.

(d) **Topographic**. Topographic engineers assist mountain operations by producing special terrain products and information on geology, weather effects and mobility.

(6) **Electronic Warfare**. Siting and transportation of electronic warfare equipments must be considered as part of the competing priorities of terrain.

OPERATIONS IN FORESTS

31. **General**. The purpose of this section is to outline the effects of forests on tactical operations. The term "forests" will be used to describe expanses of terrain which are completely covered by forests or where the majority of the area is wooded and where vehicle movement is largely restricted to roads, clearings and fire breaks, necessitating different tactics to those employed in more open terrain.

32. **Employment Considerations**.

a. **Characteristics**. Operations in forests have the following characteristics:

(1) The tempo of operations is greatly reduced.

(2) Fields of observation and fire are limited and, therefore, fighting often takes place at short rang.

(3) Concealment afforded by the trees increases the possibility of surprise.

(4) It also increases, at all levels, the problem of command and control which is further added to by a degrading of radio communications. This may call for decentralization of command and increased liaison.

(5) During periods of dry weather, the increased possibilities of forest fires must be considered.

(6) Forests reduce or change the effectiveness of firepower. Because of the problems of observation and difficulty of target acquisition, long-range weapons lose many of their advantages. Man portable weapons become increasingly important.

(7) The high trajectory of mortars makes them very suitable for operations in forests, since they can be used from any small clearing.

(8) The effectiveness of conventional high explosive ammunition against unprotected personnel is increased by the fragmentation effect of explosions in tree branches.

(9) Limited visibility will have psychological effect on the troops who are employed in operations in forests for extended periods of time.

(10) Operations in forested areas require specialized sensors which can defeat the natural camouflage of the forest. Use of imagery intelligence platforms which use radar and infrared/image intensifying sensors will be critical.

33. **Concept**. There will be fewer opportunities to use massed armour. Depending on the size of the trees, their spacing, the undergrowth and the ground, armoured vehicles may be able to force their way through, off the tracks, although this will be a slow process. A larger proportion of dismounted troops than normal is required in the defence as well as attack.

34. Forest areas have the effect of splitting up and canalizing an attack force. They favour troops engaged in defence or delay. Characteristically, the battle will be a series of isolated small unit actions. The maintenance of a cohesive posture will be extremely expensive in troops; commanders may find it necessary to accept gaps. Because of the excellent concealment for operations, there are increased opportunities to envelop, infiltrate and ambush, and a small force can have an influence on the battle out of proportion to its size.

35. **Conduct of Operations**.

a. **Organization**. Some organizational and tactical adjustments may be necessary when operating in forested areas. These may include:

(1) increased security at all levels, to avoid surprise,

(2) stricter control of movement and allocation of routes,

(3) decentralization of armour,

(4) decentralization of combat support assets, and

(5) local reserves held well forward.

b. **Defensive Operations**. The main effort should be directed against the most likely enemy approaches although the defender must be organized for all round defence to avoid being outflanked or bypassed.

c. **Offensive Operations**. Initially, forces will be echeloned in depth on a narrow front, preceded by reconnaissance operating on a wide front to identify enemy locations and possible axis of advance. Where possible, forests of limited depth should be cleared by one attack. In extensive forests, the attack will be launched to seize a succession of objectives.

d. **Planning.**

(1) **The Defence**. Planning must take into account that ground reconnaissance, particularly at lower levels will require more time than in open terrain. Attention must be paid to the road/track network, clearings, and the depth of the forest, all of which will influence the selection of position. The defender should consider the following factors in his planning:

(a) **Positions**. Most positions should be established away from forest edges because they attract fire and observation. If available, armour should be located forward of the forest edge. By contrast, non-armoured troops will, in general, be positioned far enough into the forest so that the enemy is unable to carry out an attack with tanks or to support an attack with observed fire from his heavy weapons. Forces must be positioned so that they are capable of all round defence and, where feasible, of achieving mutual support.

(b) **Armour**. Even though there will be limitations to their effective range, armour should be used where adequate field of fire are available. This may necessitate the splitting of some of the armoured assets into small elements so as to cover roads, firebreaks, etc. Positions within the forest should be selected to deal with enemy penetrations and these positions may provide a base from which mobile operations can be mounted. The most effective use of armour as a reserve is to hold it to the rear of the forest, sited in such a way that enemy armour can be destroyed as it leaves the wooded area. Small parties equipped with anti-armour weapons would make the fullest use of woods to disorganize and inflict maximum casualties on the enemy armour.

(c) **Gaps**. In forests, it is difficult to control gaps between defensive positions. When gaps have to be accepted, they should be where there is little likelihood of an enemy attack, because of the nature of the terrain or because they can be easily obstructed, or interdicted by observed fire. Surveillance of gaps will be enhanced by patrolling, outposts and the use of ground sensors.

(d) **Barriers**. The defender should exploit the numerous opportunities that forests provide to prepare barriers. Obstacles are particularly useful in impeding a frontal assault or an attempt by the enemy to bypass the defence and advance through gaps. They may also be used to set an ambush. At the same time, the mobility of the defending forces should not be impeded.

(2) **Delaying Operations**. The nature of forested areas makes them effective for use in delaying operations. Also, unlike open terrain, they provide good opportunities to employ non-armoured forces. Delaying forces usually focus their efforts on areas which the enemy is likely to use to make quick and deep penetrations (roads, tracks and firebreak areas). Coordination between the different elements of the force involved in the delay is more difficult. It requires careful control to prevent elements from being cut-off or bypassed.

(3) **The Attack**. The following points are important when planning an attack

(a) **Task Organization**. Forests make regrouping during battle difficult and time consuming. The initial task organization should be suitable for the whole operation and changes should be kept to a minimum.

(b) **Reserves**. These will generally follow closer to the attacking forces than they would in open terrain in order to swiftly exploit any success achieved and to rapidly counter surprise actions by the enemy.

e. **Nuclear, Biological and Chemical Effects.** In planning forest operations the following specific nuclear, biological and chemical effects must be taken into consideration:

(1) **Blast.** As a result of blast, tree blowdown will considerably hamper all types of troops, although the radii of damage from the blast of nuclear weapons may be considerably reduced.

(2) **Thermal Radiation.** In forest areas the effects of thermal radiation on personnel will be considerably reduced. However, the fire hazard will be considerably greater.

(3) **Chemical Agents.** If chemical agents penetrate the tree canopy, dispersion of the agents will be reduced and the duration of the hazard will be increased.

f. **Execution.**

(1) **General**. During the battle, the commander's ability to exercise control is more restricted than in other environments; subordinate commanders must expect to conduct operations independently.

(2) **Security.** As the effectiveness of reconnaissance equipment and forces is restricted in forests, there is an increased requirement for security elements.

(3) **Cohesion**. A major consideration is the maintenance of cohesion of the defence. Wherever possible, positions should be selected which offer all round defence and mutual support. Maintenance of cohesion will depend on holding these positions; giving them up involves the risk of losing contact with adjacent forces and of creating gaps which are not easily closed. If the enemy succeeds in overrunning or bypassing a position, commanders at the lower level must react immediately to restore the situation. The same principle applies to situations when the enemy attacks in areas which are only kept under surveillance.

(4) **Counter-attacks.**

(a) Counter-attacks will be undertaken by local reserves, as quickly as possible, to prevent the enemy from consolidating his penetration. Counter-attacks with armoured forces will generally be restricted to sectors of terrain where observation is good and manoeuvre is possible.

(b) Should the enemy succeed in achieving a penetration in to the defence area, elements still in position must be prepared to move to attack the enemy flanks, exploiting the opportunities offered by the forest.

(5) **Offensive Operations**.

(a) **General**. It will be impossible for the commander to plan in detail what would be possible in open terrain, because the overall picture of the terrain and the disposition of enemy forces will be incomplete.

(b) **Reconnaissance**. Reconnaissance in forests is difficult and time consuming. Air photographic reconnaissance and detailed ground reconnaissance prior to the operation will be of increased importance. Since, in many cases, complete reconnaissance results may not be obtained beforehand, and since a wide variety of surprise actions by the enemy must be expected, the attacking troops will be forced to employ security/reconnaissance elements forward and to their flanks.

(c) **Direction of Attack**. The general direction of attack is governed primarily by the existence of routes. Even though they are where strong enemy defences may be expected, such routes must be cleared to allow all elements of the attacking force to move.

(d) **Commitment of Forces**. The commander conducting offensive operations in forests must not commit the bulk of his forces too early, particularly since redeployment of forces is time consuming and difficult in this type of terrain.

(e) **Initiation of the Attack**.

i. Where an attack is launched against the edge of a forest initially, the forces employed should include armoured or anti-armour forces to neutralize the enemy's observation elements, armour and anti-armour weapons.

ii. The attacker should seek to pass through the defences along the edge of the woodland as quickly as possible. For penetration into the forest, infantry will generally be employed to continue the attack, passing through and pushing ahead of the armoured elements.

(f) **Fighting Through the Forested Area.**

i. When attacking through a forest, the leading elements will try to avoid roads, tracks, and fire break areas which will normally be blocked by the enemy and covered by fire.

ii. Enemy positions should be bypassed using gaps, attacking them from the rear and subsequently continuing to advance deeper into the enemy-held area. This can also be achieved by infiltration. If neither method is feasible, the forces should be concentrated and launched in a deliberate attack.

(g) **Regrouping**. If it is intended to continue the attack beyond the forest, combat forces should be regrouped for this purpose while still under cover of the forest. Terrain permitting, the forces should attack from the forested area on a wide frontage, using the cover provided to achieve surprise.

OPERATIONS IN ARCTIC AND COLD WEATHER CONDITIONS

36. **General**. Operations in arctic and cold weather conditions demand special techniques, training and equipment. This section concentrates on outlining the doctrine for such operations during the winter season but also gives some guidance on operations conducted during arctic summer conditions.

37. **Employment Considerations**.

a. **Characteristics**. For military operations, the important characteristics of arctic/cold weather conditions are:

(1) long hours of daylight in the summer and long nights in winter. (Arctic winter conditions not applicable to all cold weather areas);

(2) extreme cold in winter, which effects the mind as well as the body;

(3) snow and snow cover in winter;

(4) high winds which increase the windchill factor and may seriously reduce visibility;

(5) in large parts of northern areas, there is a scarcity or total absence of road and rail networks. In winter, cross-country vehicles will offer increased mobility but for much of the arctic summer, ground movement, other than with specialized vehicles, may be impossible;

(6) the local resources available will be extremely limited due to lack of settlements;

(7) the disrupting effects of natural phenomena on communications, such as, auroral effects with atmospheric static;

(8) while some areas may be forested much of the area will be without tree cover;

(9) during arctic winter conditions, the weather is normally unpredictable and may change rapidly;

(10) degradation and reduced effectiveness of vehicles, weapons and equipment, especially batteries, engines and petroleum and oil products; and

(11) construction and maintenance of shelters and utilities for troops and equipment will be crucial.

b. **Concept**. Forces operating in arctic/cold weather conditions should be capable of conducting effectively in all types of operations provided that they have received relevant and extensive training, although it should be understood that the execution of these will be more difficult than in temperate conditions.

c. The critical aspect of operations in arctic winter or extreme cold weather conditions is that a force must be able to live and survive in the environment if it is to operate effectively against the enemy. Success will depend, to a large extent, on adequate training and equipment.

38. **Conduct of Operations.**

a. **Organization**. Operations in arctic/cold weather conditions require a greater proportion of support units to maintain operational capability. Operations will normally be fought by small units. Task organizations suitable for the entire operation should be established at the outset. It will be difficult to adjust these subsequently.

b. **Planning**. The following factors are of particular importance in planning:

(1) **Weather**. Planning should take account of the likely weather conditions. Intense cold, high winds and storms may result in serious restrictions to visibility and mobility. Rapid change from dry cold to wet weather will pose particular problems to personnel.

(2) **Allowance for Time**. In extreme cold, practically every task requires more time to execute, and allowance for this must be made in planning. Individual preparation for an operation requires great attention to details, such as, clothing and equipment. Personnel operating in these conditions require additional time for rest and an increased intake of high calorie food.

(3) **Lines of Communication**. Because of the limited local resources in the Arctic, forces are even more dependent on their lines of communication than in the temperate zone. An enemy force may be defeated by severing its lines of communication and denying it the use of alternate routes or means of supply.

(4) **Shelter**. Planning must take into account the absolute requirement for shelter.

(5) **Cover and Concealment**. Under winter conditions, it is impossible to dig in to perma-frost or ice without specialized equipment or explosives. Over much of the area there will be little tree cover for concealment.

c. **Offensive Operations**. The following factors should be noted:

(1) In extreme cold, separating enemy units from their combat service support will greatly reduce their effectiveness. Without food and fuel, survival will become difficult and the effectiveness of the units will quickly deteriorate. Deterioration can be dramatically accelerated if the defending troops can be separated from their shelters or these can be destroyed by air, artillery or ground attack.

(2) Manoeuvre may at times be restricted by difficulties of weather and terrain.

(3) Due to widely dispersed zones of action, flanks and rear areas will frequently be lightly protected and present excellent opportunities to outflank or cut-off the enemy.

(4) Heavily falling snow, blizzards and fog may present excellent opportunities for surprise attack.

(5) Whilst waterways, lakes and marshes are normally obstacles to an offensive operation, when frozen, they cease to be obstacles and may provide good avenues of approach, even for heavy equipment.

(6) In arctic summer conditions, ground movement may be seriously hindered or even become impossible due to the water/mud/swamp conditions.

d. **Defensive and Delaying Operations**. The following factors affect planning:

(1) Frequently, the limited number of troops committed will make it impossible to maintain a cohesive posture. Units must, therefore, be prepared to fight in isolation with all round defence or to move to alternative position.

(2) Airmobile forces will be particularly valuable in delaying operations.

(3) Seasonal changes will affect defence positions (e.g., man-made obstacles may be made useless by heavy or melting snow).

(4) Because of the time taken and the special techniques involved to create obstacles on enemy approaches, greater reliance will have to be placed on other combat support elements in delaying and deterring the enemy.

(5) As there will be gaps in the defence, the enemy will be able to infiltrate elements which may attack support facilities and lines of communication. Special attention will, therefore, have to be paid to rear area security.

(6) The commander's decision on how to position his forces is particularly important because once deployed, adjustments will be difficult.

39. **Execution.**

a. **Defensive Operations**. Where the defender is unable to maintain his mobility, troops will be obliged to fight from their initial position, conducting the defence from isolated locations. The deployment of observation posts may be necessary to monitor the gaps between positions and act as the prompt for the timely deployment of the relevant commanders reserves. Restrictions to mobility and the resultant slowness of reaction time may necessitate the decentralization of reserves.

b. **Delaying Operations**. Normal procedures apply, but particular emphasis must be given to advance preparations of any planned position, and rearward movement. Troops should destroy any abandoned shelters that could otherwise be used by the enemy.

c. **Offensive Operations**. There are only short periods of daylight in the arctic winter and this means that movement in conditions of low visibility will become the rule rather than the exception. The following also apply:

(1) To achieve surprise, envelopment and infiltration will be frequently used, taking advantage of gaps between enemy position.

(2) After seizing an objective there must be immediate consolidation. The assaulting dismounted troops may be exhausted, overheated and sweating from the exertion of the attack and provision must be made to prevent them from becoming cold casualties.

40. **Employment of Combat Support Forces**.

a. **Artillery**. Artillery and mortar impact rounds are less effective in arctic/cold weather conditions, because of the smothering effect of deep snow and mud. More use should therefore be made of air-burst techniques. Because there is little cover, artillery firing positions will be vulnerable.

b. **Air**. Offensive air support may be particularly effective because of the lack of cover for enemy forces. Attacks on the enemy supply system may be particularly beneficial.

c. **Aviation**. Helicopters are usually able to operate in worse weather and visibility than fixed wing aircraft and helicopter landing sites will always be more easily prepared and cleared than runways. Likely tasks include:

(1) movement of guns, artillery ammunition and air defence weapons,

(2) casualty evacuation,

(3) troop lift,

(4) positioning of rebroadcast stations,

(5) movement of engineers, mining and demolition parties,

(6) urgent resupply, and

(7) reconnaissance.

d. **Air Defence**. The lack of cover and concealment will normally necessitate maximum air defence measures.

e. **Engineers**. The following tasks are of particular importance in arctic regions:

(1) **Mobility.** On frozen ground, with minimal snow cover, units can achieve excellent mobility. Marginally frozen soils, tundra, and thin frozen crust rapidly bread down under traffic, reducing mobility. Engineer snow removal may be critical during heavy snowfalls. Float bridging and rafting operations are difficult or impossible across frozen rivers and streams. Ice bridges may be constructed at temperatures below -12 degrees Celsius. Countermine operations are different in winter environments due to frozen mine fuses and loss of mine detector effectiveness. Hard, wind packed areas can generally be made usable for ski-equipped aircraft.

(2) **Counter-mobility**. If a thaw occurs, many areas of previously solid ground will be unuseable by vehicles. Ice routes over waterways may be closed by demolitions or artillery. More time must be allowed for preparation of obstacle systems in cold temperature. Arming conventional mines is difficult in freezing weather. Minefields emplaced before a snow cover forms can become neutralized by snow, depending on snow depth and density. By summer, minefields laid in snow will stand revealed, deep mud may replace formerly firm ground and the defences of winter may have become unstable.

(3) **Survivability.** Constructing fortifications and protective positions in frozen ground is difficult. Heavy earthmoving equipment requires longer to dig in frozen ground. Expedient techniques can bu used to build above-ground positions using snow. If compacted, snow will stop or slow projectiles and fragments.

41. **Command and Control.**

a. **General.** The emphasis will be on small unit operations, with particular reliance on the initiative of lower level commanders.

b. **Command Facilities**.

(1) Consideration must be given to good mobility for command post and control facilities. If the terrain permits, vehicles and mobile shelters are best for this

(2) The use of aircraft for command, reconnaissance, liaison and communications relay will be valuable in covering the distances involved and will greatly assist in overcoming reduced ground mobility and the lack of navigational aids.

c. **Communications**. Primary reliance must be placed on communications because of the great dispersion of ground forces and the difficulty of ground movement. In arctic conditions, high frequency transmission and reception, while capable of spanning the extended distances dictated by tactical requirements, are subject to interference from magnetic storms, aurora borealis, and ionospheric disturbances. These may completely blank-out reception for hours, or even days. Low frequency transmissions are also affected by auroral disturbances but to a lesser degree and they, therefore, constitute an essential back-up to other radio means.

OPERATIONS IN DESERT AND EXTREMELY HOT CONDITIONS

42. **General**. This section describes the effects that desert terrain and extremely hot conditions will have on the conduct of land operations and describes the doctrine and general procedures used. Operations in desert and extremely hot weather conditions demand special techniques, training and equipment.

43. **Employment considerations.**

a. **Characteristics**. The important characteristics of desert and extremely hot conditions affecting military operations are:

(1) The desert is harsh; living conditions can be extremely uncomfortable and the desert can easily kill unprepared troops. Troops operating in these conditions must be physically, mentally and professionally prepared to meet the challenge. They must also be acclimatized before starting full scale operations.

(2) Desert and extremely hot weather condition areas are similar in terms of environment and temperature, but differ in vegetation and terrain structure. Deserts are arid, barren regions and vary from high mountains to tracts of sand and salt marshes incapable of supporting normal life due to lack of fresh water. Populated areas are widely dispersed and centred around sources of water. Few roads and railways exist.

(3) In deserts, temperatures can be extreme in summer rising to between 50°C (122°F) and 70°C (158°F), and in winter falling to -45°C. The diurnal range may exceed 20°C.

(4) Extremely hot weather and desert can affect the normal movement of combat vehicles and the operation of weapons and communication systems.

(5) In desert, visibility is often excellent allowing good observation and long field of fire.

(6) Vegetation in the desert is poor and camouflage will generally be by artificial means.

(7) On the rare occasions that rain falls, it is normally torrential. Flash floods occur and areas of dried up water courses (wadis) are very dangerous in these conditions.

(8) Desert winds can achieve hurricane force. Dust and sand suspended within them can make life almost intolerable, movement and maintenance very difficult and can severely restrict visibility. Winds may also cause mines to move significant distances making movement near friendly obstacles more hazardous.

b. **Concept**. In the desert, operations will be conducted by armoured and mechanized forces and, on occasions, airmobile and air-landed forces. Operations are likely to take place over a very large area and may principally be battles of manoeuvre, with the aim of concentrating sufficient forces to defeat the enemy. The ability to fight in such conditions will depend on what is logistically possible.

c. **Mission**. The missions given to any force operating in desert terrain will not differ from that normally assigned. It is the way the missions are accomplished that may be different.

d. **Capabilities**. Forces employed in desert terrain have long fields of fire and observation. In most deserts, the scarcity of large areas of defensible terrain may force the enemy to leave at least one flank open to attack by manoeuvre forces, tactical air forces and artillery fire or mobile reserves. Large numbers of mines (ground and aerial delivered) may be used to enhance effectiveness. Additionally, the capability to communicate and to perform reconnaissance, intelligence, surveillance and target acquisition tasks may be improved owing to improved line of sight.

e. **Limitations**. The following limitations may apply:

(1) In desert operations, manoeuvre units tend to consume greater quantities of combat supplies and spare parts than in temperate climates. Routine maintenance checks and servicing will also become much more important.

(2) Water supply is very important due to the lack of water sources and increased consumption.

(3) Camouflage and concealment of forces is difficult due to the lack of vegetation.

(4) Large sandy, flat operational areas hinder linear defence.

(5) A moving unit is more likely to be seen due to the dust created.

(6) Lack of roads, reference points for navigation, railways and hard going on tracks will tend to slow movement.

(7) High ambient temperatures have significant adverse affects on rotary wing aircraft lift performance, resulting in reduced troop/cargo payloads. Also, blowing sand may reduce visibility to zero precluding the use of all rotary wing aircraft.

(8) Strong desert winds can force the grounding of helicopters.

44. **Conduct of Operations.**

a. **Organization.** The organization of units under desert and extremely hot weather conditions is similar to temperature climate operations. Although armoured and mechanized forces will be effective in this environment, the suitability of light wheeled vehicles, armoured or not, in sandy areas, is not to be underestimated. In order to maintain the operations as required, combat service support, primarily water supply and maintenance, is very important.

b. **Planning.**

(1) **Deception.** Deception should be a planned part of all desert operations. Smoke can be used, dummy positions can be prepared, false radio messages transmitted and even dust clouds used to deceive the enemy.

(2) **Defensive Operations.** Special attention must be drawn to those environmental characteristics which impact on defence planning. Long range visibility, extended frontages, lack of easily defendable terrain, and multiple avenues of enemy approach all pose significant problems for the planner in desert operations. As a result, the commander may take risks in the disposition of his forces forward in order to defend in depth and retain a large mobile reserve capable of reacting quickly to the threat. Emphasis must be placed on early identification of the enemy's main effort to allow for repositioning and concentration of forces in counter-attacks against the flanks of the enemy attack.

(3) **Delaying Operations.** Normal procedures apply, but particular emphasis is required on the timely reconnaissance and preparation of positions to the rear, and the maintenance of contact to avoid encirclement. Plans must include provision for alternate means of communications. Owing to the distances involved and constantly changing task organization and deployment, passage of lines will be more difficult to coordinate and control.

(4) **Offensive Operations.** Attacks launched in desert and hot weather conditions will require comprehensive plans. In most deserts, the scarcity of large areas of defensible terrain means that the enemy flanks may be vulnerable. The attacking force should seek an exposed flank and attempt to manoeuvre around it into the enemy rear before the enemy can react and block the envelopment with mobile reserves. Successful offensive operations depend on bold, rapid manoeuvre, seeking a vulnerable enemy flank.

c. **Execution.**

(1) **General Considerations.** The open terrain and the generally good weather reinforces the widely accepted need for the all round security and mobility of a force and places emphasis on the need for constant wide ranging reconnaissance.

(2) **Offensive Operations.**

(a) In the desert, a moving unit is more vulnerable due to the lack of concealment. Therefore, reconnaissance forces should be deployed well ahead of the main body. Similarly, flank and rear protection are essential.

(b) Close cooperation between ground and air elements is essential. Desert terrain is suitable for all operations as it allows broad envelopment and encirclement with armoured, mechanized and helicopter units. The disadvantages caused by the limited concealment can be decreased by surprise, rapid movement, suitable deployment of troops, communications security and deception techniques.

(c) Objectives may include enemy forces, communication centres, supply points, water sources and key terrain features.

(d) Night may be more advantageous for operations than daylight as darkness offers concealment, cooler weather and the ability to operate without air superiority.

(e) Gaps in the enemy deployment should be identified and exploited.

(f) As minefield and obstacles can be used by the defender to turn the attacker onto ground of his choosing, the attacker must have engineer reconnaissance and equipment well forward if crossing or breaching is required.

(3) **Defensive Operations.**

(a) The important defensive areas are ports, key logistic installations, roads, railways, water pumping stations, airfields, wells, mountain passes, and key terrain.

(b) Aggressive manoeuvre at all levels is the best way to destroy large numbers of enemy without being destroyed in the process. It is rare to find positions where both open flanks of the defended area can be protected by natural obstacles.

(c) Information on enemy concentration areas and axis of advance is essential.

(4) **Delaying Operations.** In delaying operations good field of fire allow engagement at the maximum effective range of direct fire weapons systems, and therefore disengagement before the enemy can begin to close on the defender's position. However, dust clouds raised by a moving force may make it necessary to disengage under cover of smoke and darkness. Even a sand storm can be used to advantage. Field artillery, aircraft and attack helicopters can also be used to allow a ground manoeuvre unit to disengage and move rapidly to the next position. The problem of accurate navigation and the possibility of the enemy approaching from an unexpected direction requires that attention must be paid to communications, the identification of vehicles, routes and coordination of movement.

d. **Employment of Combat Support Forces**. The requirements for fire support are no different than in other conditions. The range over which operations may be conducted, however, means that a force operating in the desert will be heavily dependent on air support in particular. The adjustment of fire may be difficult.

(1) **Artillery**. The provision of artillery support for desert operations requires maximum flexibility at all levels. Depending on the nature of the operation, regimental deployments may be possible, however, batteries and even sections may have to operate independently in order to provide fire to supported arms spread across wide frontages. Field artillery pieces must be as mobile as the force they are supporting. Crews must be proficient in direct fire and prepared to defend against ground attacks. Field artillery units employed in desert operations should be equipped with sophisticated survey devices. Target acquisition and determination of the coordinates of the target are difficult due to lack of reference points. Most adjustment is made by ground observers but air observers will be most useful. Since adjustment can be difficult and time-consuming an extra scaling of smoke natures should be considered when mounting operations. Weather conditions can change rapidly and so weather corrections must be recomputed frequently.

(2) **Air**. Close air support is most important in desert warfare in view of the lack of concealment, relatively large areas of operations, and the mobility of forces employed by each side. It is easy to locate targets; visual observation is normally far superior to that in temperate climates, and ground movement more apparent. Air attacks may be handicapped by lack of covered approaches, but increased visibility permits stand-off engagement. Panels or other visual or electronic identification means may be used to assist in the identification of friendly forces.

(3) **Air Defence**. The large areas of operation and good visibility are ideal for air operations. Forces fighting in the desert should be reinforced with more than the usual complement of air defence weapons. However, there may not be sufficient dedicated air defence systems to protect the force. All units must therefore include plans to counter enemy air attacks. Both active and passive measures are required. Owing to the suitability of desert for air operations, commanders must give careful consideration before moving from under the protection of their air umbrella

(4) **Engineers**. Engineer operations in arid, barren desert regions pose special problems. Deserts contain fewer natural obstacles, but extreme temperature changes can hinder the use of engineer equipment. The following tasks are of particular importance in desert regions:

(a) **Mobility**. Roads are usually scarce and primitive. Traffic ability is poor in soft sand, rocky areas and salt flats. Engineers assist manoeuvre by reducing slopes, smoothing rock steps, and bridging dry gaps. Expanded engineer reconnaissance capabilities are needed to identify routes, obstacles, and minefields. Construction of helicopter pads and landing strips are additional mobility tasks.

(b) **Counter-mobility**. Minefields and anti-armour ditches are the primary means of creating obstacles. Local materials for expedient obstacles are scarce.

(c) **Survivability**. Observation is excellent in the desert, but concealment is difficult. Armoured vehicle fighting positions are essential. Fortifications in sandy soils often require revetments. Rocks and gravel can be used for additional cover.

(d) **Topographic Support**. Topographic engineers assist desert operations by producing special terrain products and information on geology, weather effects, mobility and water resources.

(e) **Miscellaneous Tasks**. The destruction of water sources can reduce enemy efficiency to a degree that he becomes militarily ineffective. If authorized, in a withdrawal, water sources may be mined, booby-trapped, or contaminated (poisoning is forbidden by the Geneva Convention). The long term effect of destroying water sources must be carefully considered in view of their potential significance to friendly forces.

(5) **Electronic Warfare**. The principles of employment of Electronic warfare remain unchanged but electronic warfare is particularly important in the desert for the following reasons:

(a) Radio is the most important means of communications. It may be difficult to site antennae where they will efficiently cover the area of friendly forces and yet will not radiate the enemy.

(b) It may be necessary to use air or ground relays during the hottest periods of the day as VHF (FM) radios can have their range degraded by as much as 50%.